SEPTEMBER, 1958

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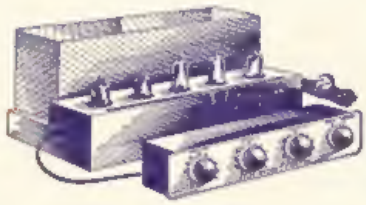

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SEPTEMBER — — — 1958
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THE CONTENTS

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EDITORIAL

★

REALISM IN SIGNAL REPORTING

A casual listening watch around the Amateur bands any day will soon reveal the inadequacy (or over-adequacy) of our present system of signal reports, if it is not already known by all. It is apparent that very little thought is given to present day signal reports that mean much to the recipient. How often do you hear a report other than 589 or 599? In contests this is especially so—you either hear them 599 or not at all.

There is little argument with the Readability part of our present RST system, which is realistically divided into five levels from R1 to R5; but what of the S and the T parts? Although on occasion one does hear an other-than-crystal signal, it appears normal to give T8 for anything from r.a.c. to a slightly chirpy signal of near d.c. note, completely ignoring the eight levels of tonal cadence. The Tone scale of reports has largely lost its usefulness especially as all stations should and most do emanate stable v.f.o. or crystal signals. This part of the report contributes nothing to the information we wish to obtain from a DX station.

Referring now to the S part of our system—the scale S1 to S9 is rarely used in its original context. Unless you receive a "60 db. over 9" report you can't be heard very well, or so it is thought. There has also always been some confusion between signal strength and readibility, leading to further misunderstandings and incorrect signal reporting. Even with the advent of S meters on receivers this has probably added to our troubles. S meter steps are usually about 6 db. per S point, but, and a big BUT, above what level? Receiver noise atmospheric noise, domestic noise, or what?

Two important factors in reporting which considerably affect the pleasure of a DX contact are atmospheric noise (QRN) and interference from other stations (QRM), yet these are often forgotten in our effort to get out that all-important "Ur sigs RST 599, OM". Even a legitimate 599 signal can become useless for the conveyance of intelligence if our next door neighbor decides to shave or his wife decides to spring-clean. The human ear, especially under the excitement and stress of a juicy DX contact, will not easily discern between nine levels of signal strength nor nine levels of tone. Which leads to the writer's contention that five levels are the maximum number which can be reasonably discriminated.

Two internationally agreed systems are at present in existence which to the writer's knowledge have never been used by Amateur stations. They are the SINPO and SINPFEMO codes, so called to indicate by the initial letters the particular receiving condition being reported. A study of both systems (which are given under the Federal Notes in this issue for information) shows a five level reference for each receiving condition on which the transmitting station requires information. Both systems offer something that is lacking in our present system—mainly a simpler and more reasonable method of five aural levels easily remembered yet providing more useful information than is conveyed at present.

The writer does not necessarily advocate the adoption of any new system as such, but merely wishes to draw attention to the inadequacies of the present out-moded system with a view to arousing interest in the subject and perhaps promoting some suggestions for a more workable and realistic approach to the Amateur method of effective signal reporting. Give this matter some concentrated thought—the Federal Executive will be pleased to receive your views.

FEDERAL EXECUTIVE.

How to Tune Your Pi-Network Final

Simple Procedure for Popular Tapped-Coil Systems

BY LEWIS G. McCOY, W1ICP

IT is apparent from the number of inquiries received from Novices asking how to tune a pi-network transmitter that this is a common problem. Fortunately, most of the current manufactured transmitters and those that are home-brewed have pi networks whose coils or inductance values are preset for each band. When this is the case, the tuning procedure is not very difficult.

Fig. 1 is the diagram of an amplifier with a typical pi-network output circuit. For the sake of simplicity, the bandswitch has been omitted. C1 is the pi-network input or plate-tuning capacitor. L1 is the coil, or inductor, C2 is the variable loading capacitor, usually labelled **fine loading** on manufactured transmitters, and S1 is a switch usually labelled **coarse loading**. The switch connects additional capacitance in parallel with C2 when it is needed.

In learning how to adjust the controls on your transmitter, we suggest that you use a "dummy" antenna at first. A dummy antenna is a device having characteristics similar to those of an antenna system. But the radiation from it is negligible so that you can try the various adjustments without bothering anyone by putting a signal on the air.

Either by design of the antenna and its feed line (matched system) or by use of an antenna coupler between the transmitter and antenna or feed line, almost any antenna can be made (and usually is made) to look like a resistance so far as the transmitter is concerned. Therefore, a resistance can be used to simulate an antenna for testing purposes.

Ordinary house lamp bulbs are a convenient form of resistance to use in practicing the tuning of a transmitter. They have the advantage that they light up when r.f. power is fed to them and thus you can get a relative indication of power output.[1] Thus, for instance, if you use a 60-watt lamp, and it lights up to normal brilliance when the transmitter is loaded normally, you can figure that you have about 60 watts output. You should select a lamp that has a wattage rating equal to about 75 per cent. of your transmitter's rated power input. For example, a 60-watt lamp is a good size to use for the Novice 75-watt input level. The lamp should be connected across the output terminals of the transmitter, with short leads.

TUNING THE PI-NETWORK

Before turning on the power to the amplifier or closing the key, the output capacitance should be set at maximum capacitance. This means that C2 should be turned so that its plates are fully meshed and S1 should be turned so that all the fixed capacitors are connected. Instruction books of manufactured transmitters usually tell you which positions are maximum capacitance.

When power is first applied and the key closed, the reading on the plate-current meter will probably be above normal for the tube. The reason for this is that the output circuit is not tuned to resonance. But as you tune C1 through its range, you will find a point where the plate-current reading on the meter drops sharply. If you turn C1 still farther, you will find that the plate current rises to a high value again. The correct tuning point is the one where the plate current is minimum. This point is often referred to as the point of **plate-current dip**, or point of **resonance**.

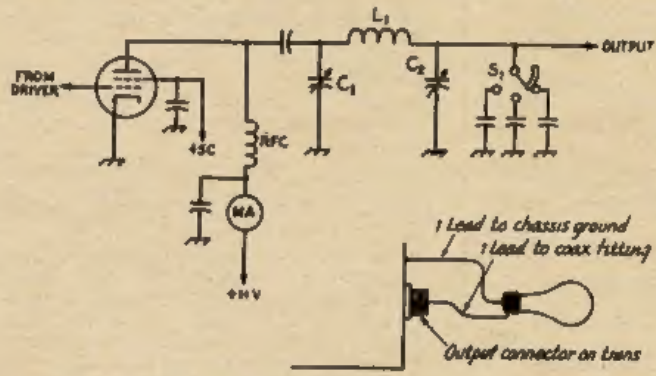

Fig. 1.—Circuit diagram of a typical pi-network tank circuit. C1 is the input or plate-tuning capacitor, C2 is the output or loading capacitor, S1 is used to switch fixed capacitors in parallel with C2 to avoid the need for a much larger variable at C2.

The amplifier should not be operated off resonance any longer than it takes to tune the output circuit to resonance because the large input power that the amplifier draws when it is tuned off resonance is not converted into useful r.f. power but is dissipated in heating the tube elements to the point where the tube may be permanently damaged. (We have seen some Amateurs who thought they were loading the amplifier when they tuned off resonance because the plate current was higher!)

It is probable that on the first trial the plate current will dip to a very low value and the load lamp may not show any light at all. The low value of plate current means that the amplifier is not drawing much input power and therefore we can't expect much output power. The reason that the amplifier is not drawing much plate current is that the load is loosely coupled to the amplifier. Adjustment of the loading controls, C2 and S1, will increase the coupling to the load and the amplifier will draw more input power.

CHECKING RESONANCE

However, before proceeding with the loading adjustment, it is most important to make sure that the amplifier is tuned to the correct operating frequency. The only difference between a straight amplifier and a doubler or tripler is that the output circuits of the latter are tuned to the second and third harmonics of the frequency fed to the grid, while the output circuit of the straight amplifier is tuned to the same frequency as that fed to the grid. In some manufactured transmitters, the tuning range is restricted so that it is impossible to tune to any frequency except in the band for which the band switch has been set. In others, and in many home-built rigs, the tuning range is so great that both the correct operating frequency and its second harmonic (twice the operating frequency) can be tuned to within the range of C1. In such cases, a plate-current dip will be found near maximum capacitance of C1 (usually the correct one at the operating frequency) and a second dip near minimum capacitance where resonance occurs at twice the operating frequency.

Naturally, care must be used to avoid tuning the transmitter to the second harmonic. If your operating frequency is in the 3.7 Mc. range, and you make a mistake, you'll land on 7.4 Mc.; if your operating frequency is supposed to be in the 7.1 Mc. range, you'll be radiating on 14.2 Mc.

In some transmitters there may be responses at other frequencies generated in driver stages. The moral is: If you find more than one dip in plate current, check with an absorption wave meter.[2] (This check should also have been made at the grid of the amplifier to make sure that it is being driven at the correct frequency.)

LOADING THE AMPLIFIER

Once you have determined the correct setting for C1, you are ready to start adjusting the loading by means of C2 and S1. Both of these have been previously set to put maximum capacitance in the circuit.

First, turn the variable capaictor C2 toward minimum capacitance while

(Continued on Page 5)

* Reprinted from "QST," Feb. '58.

1 The resistance of a lamp bulb changes with temperature so that it cannot be used for accurate measurement. Also, the resistance of the lamp bulb at maximum will usually be higher than the 50 or 70 ohms most antenna systems are designed for. Nevertheless, pi-network adjustments will be similar.

2 McCoy, "The Band Checker," "QST," Nov. '56.

Crystals Substitute Mechnical Filter

BY RUDY FAESSLER,* HB9EU

FOR many years, an i.f. crystal filter in a communications receiver has been standard equipment for a high quality communications receiver in the medium price class. The classic arrangement, Fig. 1, is well known to every Ham and for many years it has proved an excellent help for thousands of Hams around the world.

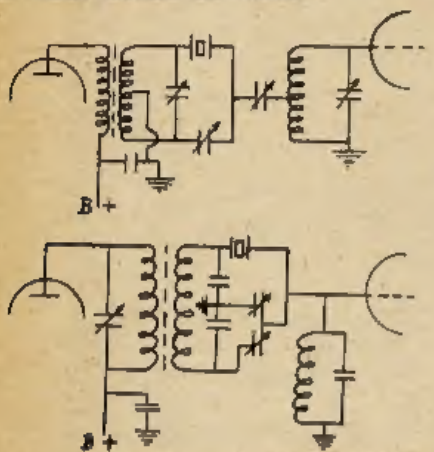

Fig. 1.—Two variations of normal xtal filters.

All Amateurs who have used such a crystal filter know that it has some disadvantages. If we take a critical look at the resonance curve of such a filter, Fig. 2, we find two special disadvantages:

1. The absence of a so-called "flat-top"
2. The curve looks like a triangle, with the skirts too broad.

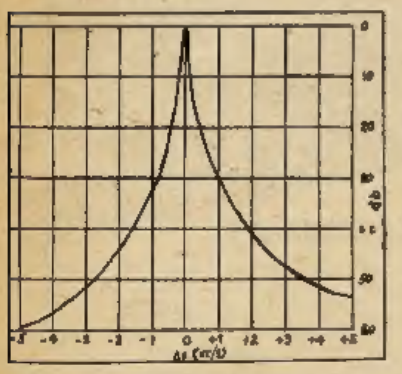

Fig. 2.—Resonance curve from a classic xtal filter of Fig. 1.

Of course crystal filter circuits have been developed, Fig. 3, which give better rectangular curve-forms, but they are more complicated to construct and to tune properly, and they take more parts. Such filters cannot usually be built without some precision measuring equipment.

This article will discuss a crystal filter circuit which is easy to build and tune, and which will give ideal band-pass form which every DX man needs in his receiver.

* Chamerstr. 68-D, Zug, Switzerland.

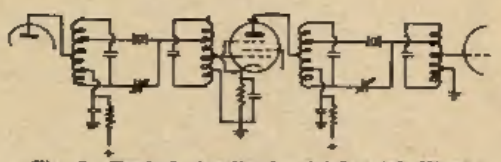

Fig. 3.—Typical circuit of a triple xtal filter.

Looking at the curve form, Fig. 4, of a prototype of such a filter, with diagram in Fig. 5, you will see that it is nearly the same as that of a mechanical filter. You will also notice that the circuit includes no coils and that it can be constructed in a very small space on a chassis.

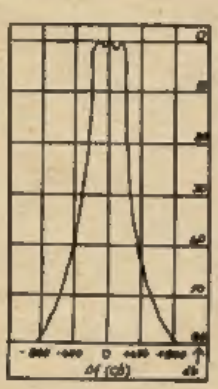

Fig. 4.—Resonance curve from Fig. 5.

Bandwidth at —3 db. equals 400 cycles.
fo equals 400 Kc.
$\frac{Uo}{U1}$ equals 31.7 db.

Crystal (Type FT241-A) frequencies:
CR1 equals 400.13 Kc.
CR2 equals 399.84 Kc.
CR3 equals 400.00 Kc.

The circuit is a three-stage "staggered-tuned" amplifier in which each stage includes a cathode-follower followed by a degenerative amplifier in a cathode-basic circuit.

Fig. 5.—Circuit diagram of the three stage "staggered tuned" filter.

C1—1000 pF.
C2—16,000 pF.
Cn—see Text.
R1—470K ohms.
R2, R5—1,500 ohms.
R3—100K ohms.
R4—1K ohms.
R6, R7—4,700 ohms.
Rq—See Text.

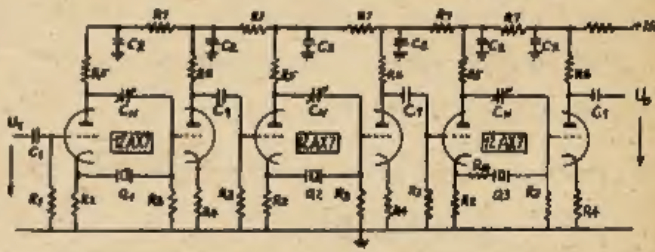

Fig. 7a shows such a stage alone. The signal U1 produces on the cathode resistor of V1, a signal with the same phase, which is coupled by a crystal Q to the grid of V2. As the crystal is the equivalent of a series-resonance circuit, with very high Q, so only signals with the crystal resonance frequency will pass through from cathode V1 to the grid of V2. Every crystal includes a real part and a shunt capacity. The latter one (crystal holder capacity) must be eliminated. This is accomplished through Cn which couples a signal with a phase-shift of 180° from the plate of V1 through the neutralising capacity Cn to the grid of V2. The value of Cn should be approximately the same as the holder capacity of the crystal Q.

To give a better understanding of the function of the circuit, Fig. 7b presents one stage again with its main circuit elements, and Fig. 7c is the equivalent circuit showing their functions.

To calculate the gain of a stage on its resonance frequency, the following equation can be used for nearly exact values:

$$\frac{Uo}{U1} = \frac{Iq\ Zci}{U1} = \frac{Zci}{R1 + Rq}$$

If Ri is large in respect to Zci, then Ri must not be included in the calculation. R1 is the internal resistance of V1, Rq is the resistive part of the crystal, Zci is the reactance of the input capacity of V2 plus the wiring capacity. Lq and Cq are the real components of the crystal.

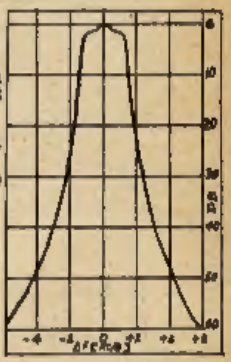

Fig. 6.—An application of 1600 Kc. on circuit of Fig. 5.

Bandwidth at —3 db. equals 2.4 Kc.
Gain at fo equals 1600 Kc. : 5 db.

Crystal frequencies:
Q1 equals 1601 Kc.
Q2 equals 1599 Kc.
Q3 equals 1600 Kc.

To get the desired flat-top with a ripple (top to valley response of the resonance curve) of approximately 3 db., it might be necessary to add a resistor (non-inductive type) in series

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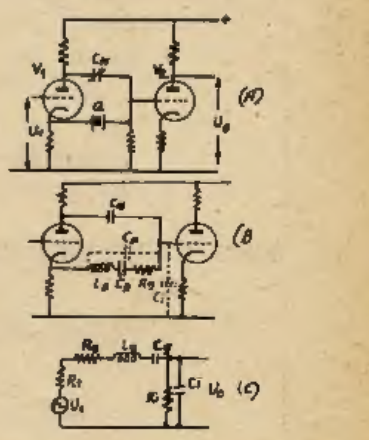

Fig. 7.—Equivalent circuit from one stage of Fig. 5.

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138 Wakefield Street, WELLINGTON, N.Z. 'Phone: 43-191

TIME DELAY CIRCUITS FOR USE WITH MERCURY VAPOUR RECTIFIERS

BY S. T. CLARK,* VK3ASC

MOST Hams are familiar with the advantages of mercury vapour rectifiers—low voltage drop and high efficiency compared to vacuum rectifiers. Since it will undoubtedly be a number of years before the "silicon" types, with their even higher efficiency, become cheaply available and we can throw out our rectifier filament transformers, I propose to give a short dissertation on ways of preventing your prized 83 or 866s from finding a premature grave in the dust-bin.

The first, but not the most reliable, method of preventing premature failure is to switch the rectifier filaments on and wait for up to fifteen minutes—take careful note of the manufacturer's recommendations in this respect.

The second, inexpensive method is to switch the heaters on before the evening meal and switch the h.t. afterwards. The trouble with these two methods is that in the case of the first, impatience is likely to cause us to take a risk because we hear a rare one calling CQ, or in the second, our "forgetteries" work overtime and the filaments don't get much warm-up time.

What we need are inexpensive (the cheaper the better) means of overcoming premature switching without too much delay. T. R. Baker, VE3AXC, describes a good system in May "QST", but Amperite 115N030 thermal delay relays are not available in Australia unless you have a U.S. friend who sends Xmas and birthday presents.

What can the VK Amateur do to solve his problems? There are a number of time delay systems that can be put to good use, preventing premature deaths in your family of rectifiers.

The first of these is to use a relay, 24 volt type, with at least two sets of contacts that will carry about two amps. at 240 volts, operated by the bleeder current of a low-power bias or driver-multiplier power supply. (In the case of the latter, a "3000" or similar low current type operating microswitch is recommended.)

The amount of delay required is set by using a resistor in series with the tube heater to slow up the heating of the cathode so that the relay only closes after the required time interval. In building such a unit it is necessary to ensure that the relay closes OK on the bleeder current, and in the case of a bias pack, this can easily be 40 to 60 mA. as a stiff supply is needed for bias purposes. Using the bias supply also has the added advantage that if the bias fails, your transmitter will be switched off and so the equipment "fails safe".

To come back to our two sets of contacts, even the youngsters will see that one set of contacts are going to be used to switch the a.c. to the h.t. transformer, but what about the other set? You are right, they are used to short circuit the resistor so that the tube operates with its rated heater voltage applied and so is able to give of its best. Any rectifier with a cathode can be used—5V4G, 6X5GT, 6X4, 6V4, etc., although the low current types such as the 6X5, etc., are the easiest to control.

The second method that can be used is to use a 3 or 5 watt resistor to heat a brass rod and cause that to operate a microswitch, through a simple "multiplying" lever system if necessary. In fact, some microswitches require so little movement to operate them that you will probably find that the ceramic tube on which the resistor is wound expands enough to operate the switch. In this case the "delay" is set by an adjusting screw positioning the resistor correctly and the application of the correct voltage to the resistor causing it to heat up enough, but not too much. (Take note of ratings.) You will also need to make sure that the resistor is of the vitrefied type, i.e. I.R.C. or similar.

The third method is to use a disposals time delay relay, if you can find one.

The fourth method is to approach United Radio Distributors, or British Merchandising Pty. Ltd. (both in Sydney), or ask your favorite dealer to obtain for you one of Ediswan's series of DLS series delay relays. They are vacuum delay relays with 4-pin British or octal bases for operation from 4 or 6 volt a.c. supplies, and they are relatively inexpensive.

Don't shy away from the 4v. versions either because a resistor will soon modify them for operation on some other suitable filament voltage. You can calculate the required resistance value using Ohms Law and make it up from a piece of resistance wire or buy one of suitable resistance and power rating, as usually only 1 to 5 watts will be required.

Don't worry about the "delay" being shorter if your rig has only been switched off for a very short time. If the "delay" has not had time to cool, it is certain that the rectifier will still be full of vapour.

Generally speaking it is the "cold start" that does the damage and it is usually recommended that you wait fifteen minutes before switching on the h.t.

I believe that time delay protection of m.v. rectifiers is well worth while, even though you can buy them from "Dan", "Snow" or "Mac" for about £1 per 866. It is always wise to remember that the abovementioned gents will not be available when you do the wrong thing and up goes a pair of rectifiers.

FOR YOUR OWN SAFETY

In making connections between power supplies and apparatus, **always place the socket on the power supply** so that accidental contact is not possible. DEATH IS SO PERMANENT!!!

* 68 Jensen Road, East Preston, Vic.

HOW TO TUNE YOUR PI-NETWORK FINAL

(Continued from Page 2)

you watch the amplifier plate current (which has been previously adjusted to the dip at resonance). The plate current should start to rise. As soon as it has risen a noticeable amount, re-adjust C1 to the bottom of the dip in plate current. You will notice this time that the dip in plate current is less pronounced and that the current does not dip to as low a value as it did previously. This indicates that the amplifier is beginning to take more power. As the plate current **at the dip point** begins to rise, you should notice that the load lamp will start to get brighter, indicating that as the amplifier begins to take more power input, it produces more power output. Also notice that when you tune C1 away from the plate current dip the plate current will increase but that the output power will be reduced.

If the plate current at the dip is not up to the rated value for the amplifier tube when you have reached minimum capacitance on C2, return C2 to the maximum capacitance setting, turn S1 to the next position and repeat the same procedure. The process should be continued, advancing S1 one position at a time, until the amplifier is drawing rated plate current at the plate-current dip. By the time the amplifier is fully loaded, the dip in plate current will have become relatively broad. Adjustment of the capacitances will become more critical as the frequency of operation is increased.

In most transmitters you will find that you can increase the loading until the amplifier is drawing considerably more than rated plate current, and you may get some corresponding increase in power output. However, you should not operate the amplifier this way if you expect to get normal service life from the amplifier tube or tubes.

— . . . —

CRYSTALS SUBSTITUTE MECHANICAL FILTER

(Continued from Page 3)

with the crystal to keep the Q of the crystal in the middle of the bandpass curve-down (Rq in Fig. 5). This value must be calculated experimentally. Also the bandwidth can be changed this way, within small limits.

Needless to say, that for extremely sharp bandpass, it is possible to use a single stage with only one crystal or two stages with the crystals on exactly the same frequency. Also it is possible to use four stages in the same manner as Fig. 5 presents.

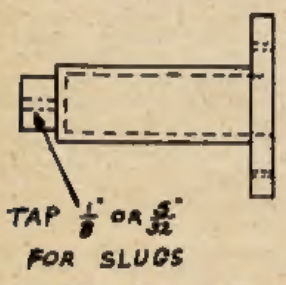
The discussed filter circuit can be used for frequencies from 200 Kc. to 2 Mc. Receivers with a 1600 Kc. i.f. have bad selectivity if coils are used in the filter circuit. Cross modulation is the trouble with such receivers. With a three-stage "staggered tuned" crystal filter, cross modulation can be eliminated completely. A typical curve of such a filter is shown in Fig. 6. The filter circuit is very useful for many other Ham improvements.

HINTS AND KINKS

MAKING COIL FORMERS

How often has a Ham over the years turned his junk upside down to look for something to wind a coil on? In my case, many times, and it is only within the last couple of months that I have found the answer, and here it is.

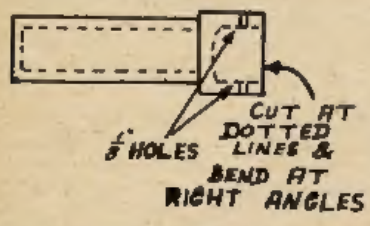
As you know, when a doctor uses a Penicillin syringe the plunger and cylinder are thrown away as useless, but I had a brain-wave. The material of which these syringes are made is Polyethylene, which is also the insulating material in co-axial cable, and the shape as you will see by the sketch, makes them an admirable coil former 1¼" long and 9/16" diameter with a ¾" hole. This constitutes the syringe and another form is made from the plunger 1¼" long ¾" diameter with ¼" hole. Both pieces can be slug-tuned, one with ¾" slug, and the other with a ¼" slug.



To make these formers I proceeded as follows:

Firstly, I pulled out the needle with pliers, then I drilled a ¼" hole through where the needle was removed and tapped 5/32". This is standard for a ¾" slug. In the case of the plunger, the end was drilled and tapped ¼" to accommodate a standard ¼" slug.

Now this material lends itself to threading on a lathe, and I have made a number with 16 and 32 turns per inch. I drilled ¼" holes in the flange of the cylinder for holding-down screws. In the case of the plunger I cut out pieces as shown in sketch, bent the lugs remaining at right angles, and drilled ¼" hole through each side for holding down purposes.



If one wants to use slugs from the top of chassis, a small piece of wood or perspex turned and tapped to fit the screws of the slugs can be cemented into the cylinders, which also allows the coils to be wound well away from the surrounding metal.

Of course, it is not necessary to thread the cylinders so that a close wound coil can be used instead. When the coils are wound, cement them in position (with the tension still on) with any cement you have on hand. In my case I use perspex dissolved in chloroform.

You will find in the cylinder a rubber bucket. Push this out, drill a hole through the centre and you will have a rubber grummet ideal for insulating wires through chassis, etc.

—W. H. Hannam, VK2AXH.

REMOTE TUNING OF THE CUBICAL QUAD

A great help in receiving through QRM with a cubical quad antenna is being able to phase out interfering stations by adjusting the quad's reflector at the operating position. This may be done with receiving-type twin-lead and a 360 pF. variable capacitor.

Attach one end of the twin-lead to the junction of the reflector and the tuning stub and the other end to the capacitor which has been mounted at the operating position in the shack. Set the capacitor at half capacitance and then adjust the stub for maximum front-to-back ratio as is normally done.

I can adjust for front-to-back ratio over the entire 21 Mc. band with this arrangement. The forward gain remains essentially the same regardless of the setting of the capacitor, but interfering signals from the back may be reduced an average of 30 db.

—Capt. J. R. Hagen, K4JMA, "QST" Feb. '58.

COIL FORMER FROM 35 MM. FILM CASSETTE

A useful coil former is readily available in a well known 35 mm. film cassette. The black spool is styrene and being hollow can be adapted to take a slug.

—G. Bills-Thompson, VK3AHN.

MULTIPLE POSITION CRYSTAL HOLDER

A simple and inexpensive holder for a group of crystals may be made by mounting salvaged tube socket clips in a sheet of plastic.

Holes drilled to accommodate the clips should have a diameter slightly smaller than that of the clips. This will allow the clips to be force-fitted into place. Heating each one with a hot soldering iron will seal it to the plastic. Naturally, the heat should be applied with caution so as not to completely melt the holder.

—L. F. Lind, K4AWQ ("QST," Mar. '58)

AN AUDIBLE TUNER*

SIMPLE DESIGN COVERING ALL BANDS FROM 1.8 TO 30 Mc.

The tuner to be described was devised for a blind Amateur so that he could accurately resonate his p.a. tank circuit and, with the p.a. switched off, tune the exciter for maximum drive. It can also be used as a monitor for both c.w. and phone, and is useful wherever a simple wavemeter is needed. No originality is claimed for the design, but it is put forward in the hope that it will be of help to other sightless operators.

It will be seen from Fig. 1 that the unit consists of a tuned circuit, a diode r.f. rectifier (V1), and a triode audio oscillator (V2). The only power supply needed is for the heaters of the two valves.

In operation, the tuned circuit is set to the centre of the desired band and a small amount of r.f., picked up by a short length of wire attached to the aerial terminal, is rectified by V1 and used as h.t. for V2. V2 then oscillates, and a note is heard in the headphones.

As the driver or p.a. tank is tuned to resonance, the amount of r.f. picked up by the tuner increases, thus causing the volume of sound in the phones to increase.

By this means the transmitter can be peaked up as accurately as if the operator were watching a meter.

The switch S2 prevents oscillation when the tuner is being used as a phone monitor.

Construction is simple and the component values and layout are not critical. The transformer T1 provides the anode-to-grid coupling to make V2 oscillate and couples the output via a low impedance winding to the headphones. The transformer used in the original unit is a surplus item numbered ZA14587, but any transformer with similar windings, such as the modulation transformer from a Wireless Set No. 17 or the output transformer from the "A" set of a WS19 should be suitable.

* Reprinted from R.S.G.B. "Bulletin," April, '58.

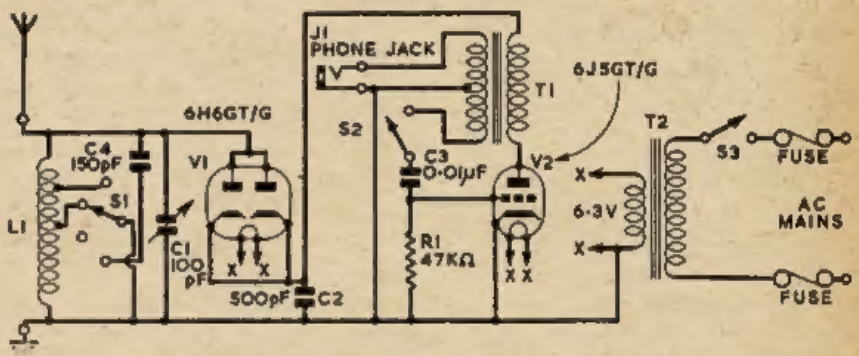


Fig. 1.—Circuit diagram of audible tuner. C1 is the main tuning condenser, C4 being switched in for 1.8 Mc. by wavechange switch S1. L1 is 30 turns 26 s.w.g. wire on 1 inch diameter former, tapped at five turns for 10, 15, 20 metres, and at 15 turns for 40 metres.

CORRESPONDENCE

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publishers.

Editor "A.R.," Dear Sir,

When working George VE2LI (ex-G5LI) recently, I mentioned the late VK5BY, knowing that they were old friends.

George was very shocked at the news of Doug's death as they had many QSOs over the last 25 years from both G5LI and VE2LI.

He specially requested that his great sorrow be expressed in the VK Ham Journal and that his sympathy be extended to Doug's widow and family, and also to the W.I.A. at the loss of such an outstanding member.

—H. M. Roberts, VK5MY.

COUNCIL OF ADULT EDUCATION OF VICTORIA CLASSES

Editor "A.R.," Dear Sir,

Readers of "Amateur Radio" may be interested to learn that the Council of Adult Education of Victoria will be holding a class for those interested in practical electronics.

The class is experimental in so far that instead of the students being asked to work on a set project, they will be invited to come up with anything they are actually working on and an attempt will be made to develop the lectures around the immediate practical needs of the members of the class.

The C.A.E. is anxious that information about this class should reach as many technically minded people as possible and if you could assist in giving any publicity I would be very grateful.

—R. Hartkopf.

[Details of the class are shown hereunder.—Editor.]

ELECTRONICS FOR THE HANDYMAN

Mr. R. Hartkopf
Adult Education Centre,
114 Flinders Street,
Melbourne.

7.45 p.m. — 9.15 p.m.
Beginning September 18
Thursdays.

This course is exclusively for people who are actually working on some electronic gadget—anything from a crystal set to a hi-fi or an electronic brain.

Practical experience gained by class members working on their individual projects will be linked with basic theory, thus enabling them to expand their knowledge.

Duration of course: 10 weeks. Fee: £2/0/0.

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ADDITIONAL FREQUENCIES FOR VK2WI BROADCASTS

There are now three transmitters in full operation at VK2WI, Dural. The frequencies used on the Sunday broadcasts are: 3575 Kc., 7146 Kc., and 146.0 Mc. Call-backs are taken on 7050 Kc. at present.

During August, the transmitters commenced operation on full power after the supply authorities connected in a pole transformer about 400 feet away from the transmitting room. Previously power had to be drawn for over two miles away.

BOOK REVIEW

DRY BATTERY RECEIVERS WITH MINIATURE VALVES

By E. Rodenhuis

Here is yet another absorbing volume from the prolific Philips Technical Library.

Even the advent of television has not reduced the popularity of the dry battery portable type receiver. In fact they appear to gain in favour each year.

Although transistors are beginning to make their way on to the local market, they are as yet not available in sufficient quantities to seriously challenge the miniature valve.

From an Amateur point of view these tubes have obvious applications in portable emergency gear.

Chapters in the book are devoted to a full discussion in the use of dry battery valves and include sections on valve types, circuit design, electronic tuning indicators, and typical circuits.

One interesting feature is the use of these valves in high frequency f.m. circuits.

Unfortunately all the valves described are European types and are unavailable here. However, as full data is given on each one, it would not be hard to substitute a local equivalent.

Our copy from Philips Gloeilampenfabrieken, Holland.

The book is available from Philips Electrical Industries Pty. Ltd., 69-73 Clarence Street, Sydney. On information supplied, the price is 32/6 Sterling.

THE "MACRON" CRYSTAL TURNOVER PLAYER CARTRIDGE TYPE H.F.11

Made in Australia to suit Australian conditions

by MACRON ELECTRONICS PROPRIETARY LIMITED, 54 High Street, Glen Iris, Victoria

LET US LOOK AT THE FACTS:

★ Clip-in insert. Can be replaced without removal of mounting bracket.

★ Half inch and centre mounting interchangeable with standard arms.

★ Robust construction with positive positioning for "Standard" and "Longplay" positions.

★ Non-hygroscopic adhesives used throughout in the manufacture of the crystal element.

★ Slip-in Sapphire stylii, interchangeable with standard makes.

★ Replacement stylii available, also fit other standard cartridges.

★ High compliance, which ensures good tracking, thus resulting in low record wear.

★ Wide frequency response, enabling the utmost realism from modern wide-range recordings.

★ Attractively and safely packed in sealed clear-plastic container.

AGENTS: D. K. NORTHOVER, 115 Murray Street, PERTH, W.A. — NEIL MULLER LTD., 8 Arthur Street, UNLEY, S.A. — JACOBY, MITCHELL & CO. PTY. LTD., 429 Kent Stret, SYDNEY, N.S.W.

Marketed by ZEPHYR PRODUCTS PTY. LTD., 58 HIGH STREET, GLEN IRIS, S.E.6, VICTORIA

AMATEUR TELEVISION

PART SEVEN

BY E. E. CORNELIUS,* VK6EC/T

TESTS AND MEASUREMENTS

To obtain optimum performance of the camera chain, certain test equipment and test charts are invaluable. The important checks to be applied are:—

1. Scan linearity.
2. Frequency response.
3. Low frequency phase response (square wave).
4. System gamma.
5. Pulse durations, rise and fall times.

Scan Linearity will be discussed first, and requires the use of a test chart and a grating generator. The grating generator is designed to provide a grid, grating or crosshatch pattern on the picture tube, with 20 vertical bars, 17, of which should be visible, and 15 horizontal bars, 14 being visible, the remainder being lost in blanking.

* 157 Wood Street, Inglewood, Western Aus.

A corresponding test chart is made, having 17 vertical rows of circles, and 14 horizontal rows. This is scanned by the camera, and reproduced on the monitor. The grating is superimposed electrically, and with perfect scan linearity, the bars fall centrally across the corresponding circles.

The circles are made such that the width of the inner white circle is 1.5% of screen width, and that of the black outer circle is 3%. Then the displacement of any bar can be measured as a percentage.

Fig. 31 shows the test chart, with important dimensions. In the top left hand corner is shown a part of a superimposed grating showing accurate linearity. The chart is made from showcard paper, with black Indian ink, and glued to masonite.

The chart alone will not show scan linearity in either camera or monitors. If the camera is scanning too fast on the right, on a linear monitor, the right hand side of the pattern will be compressed. An equal and opposite non-linearity of the monitor can exactly cancel this by expansion on the right (the most common condition) resulting in apparent perfect linearity of both. A linear monitor, however, would show up the camera non-linearity.

Method—Camera Linearity

Set up the camera on the chart and adjust the scan width and height to just show the edge arrows on the monitor. Not the viewfinder, as this shows slightly more picture width and height, due to the non-standard blanking provided from the drive pulses.

Superimpose the pattern from the grating generator, panning and tilting the camera slightly to obtain register of the **centre** V. and H. bars with the **centre** of the pattern. The grating signal can be mixed by feeding into the mixer, or via a series resistor of the

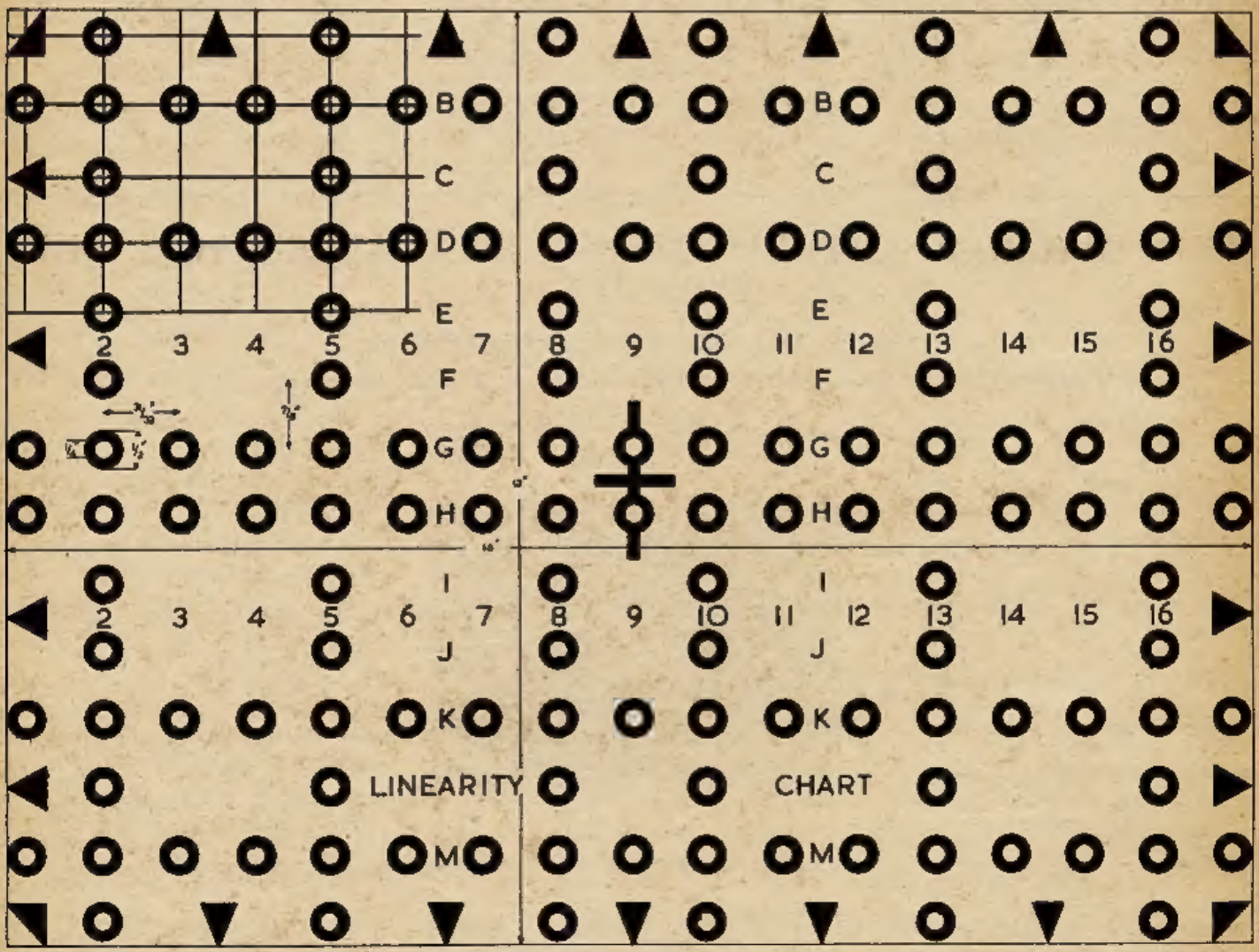

FIG. 31—LINEARITY CHART

order of 1,000 ohms to the viewfinder or c.c.u. input.

Using the camera linearity and width controls in conjunction, adjust the picture from the chart until the best horizontal scan linearity is obtained, while maintaining the correct width. The rows of circles will move horizontally as the linearity control is varied, and the final result should give better than 2% non-linearity for all of the 17 bars. Some compromise will be necessary, and small errors all across the screen are better than a large error, usually at one edge, and accurate scan over the rest.

Once set, mark or lock the camera horizontal linearity and width controls, and do not disturb them until a tube or circuit is changed. Then operate similarly on the vertical linearity and height controls, and lock or mark these when optimum results are obtained.

Picture Tube Linearity

Any deformation of the chart or grating now seen on any monitor tube is due to non-linearity of that tube's own scanning circuits. Using an engineer's dividers measure the distance apart of adjacent grating bars on the monitor screen. Adjust the horizontal linearity and width controls, and the vertical linearity and height controls until the bar spacings are as near equal as possible.

The toughest test that a camera chain has to face is to delineate accurately a large circle. This is an extremely sensitive test of linearity, and some deformation will still be detectable when the linearity is better than 2%.

The grating generator is a very useful instrument, other than for linearity checks, as it provides a convenient source of signal for many functional tests on individual units and as a video source for "on air" testing. The circuit is shown in Fig. 32.

It is fed with 4 volt negative line drive pulses, or composite sync., as a split off the signal generator. The differentiated pulses synchronise a 15,625 p.p.s. blocking oscillator, which drives a X20 multiplier giving 312.5 Kc. p.p.s. output for the 20 vertical bars. It is not possible to obtain 15 horizontal bars directly by division from 15,625, and it is first necessary to multiply by 6, and then divide by 125 in three steps of five.

The isolating amplifier V1 synchronises V2, a blocking oscillator using grid and screen. Two tuned circuits in series with the anode are tuned to X10, 156.25 Kc., and X6, to 93.75 Kc. These use 175 Kc. i.f. transformers loaded to the new frequency.

The 156.25 Kc. is doubled again to 312.5 Kc. in V3, and amplified by V4, which injects sync. into the 312.5 Kc. blocking oscillator V5, for the 20 vertical bars.

The 93.75 Kc. signal is divided by three phantastron dividers by 5 x 5 x 5 to 750 p.p.s., which is the frequency of the 15 horizontal bars. These two bar frequencies are combined in an ECC35 (V9) clipped and amplified by V10, and fed to a cathode follower V11, for low impedance output, delivering about 1 volt p./p. in 75 ohms.

The 15,625 p.p.s. b.o. transformer may be similar to a receiver type, with three equal windings. The transformer for 312.5 Kc. is not an easy component to design. The output pulses should be 0.25 μsec. in duration and this is determined almost entirely by the b.o. transformer characteristics. I used a vintage "Sirufer" core with similar windings in each of the three former slots. Each is wound with 60 turns of 36 gauge B. & S. I suggest that a powdered iron core be used, with pots to enclose the windings, similar to the "Permaclad" design. Wind with about 60 turns per winding and test. Regardless of pulse rate, over wide limits, the pulse duration (width) will be substantially constant. Measure the pulse duration, as outlined later, and if too long, reduce the number of turns on each winding, and conversely. When somewhere near the correct pulse width, make sure the b.o. is running near 312.5 Kc. before the final checks and adjustments are made.

As the h.t. supply is glow-tube regulated, the counter is very stable, and once adjusted, should need no further attention. In my unit, the horizontal bars lock within a minute of switching on, and stay locked indefinitely. For monitoring the count, connect a c.r.o. to the cathode of the stage. When the correct count is obtained, the vertical displacement of each fifth pulse is obvious.

Frequency Response

Ideally the overall video chain should be flat from 25 c.p.s. to 5 Mc., with constant phase delay throughout this range. Flat frequency response alone is not sufficient. Two methods of checking this are available, one by h.f. and l.f. signal generators, for sine and square wave response, the other by the use of resolution and streaking charts. The first method is desirable for initial design and construction, and the second for occasional routine checks.

H.F. Response

From 100 Kc. upward, provided the frequency response is flat, phase delay will be no problem. The individual response of each unit should be good, as well as that of the overall chain. Step by step frequency response checks would be prohibitively time wasting. Sweep frequency techniques are ideal and quick. The equipment required is a video sweep generator, low capacity detector probe, and any c.r.o.

The technique is to feed a video frequency of constant amplitude, swept from 100 Kc. to say 6 Mc., at a 25 to 50 c.p.s. rate, into the unit at the correct level and impedance. The output of the unit, correctly terminated, is fed to a probe, and so to a c.r.o., with its horizontal sweep in synchronism with the video sweep.

About the only satisfactory way to obtain a sweep from 100 Kc. to 6 Mc. is by a beat frequency technique. The sweep generator to be described is only one approach to this, and the swept oscillator could use any of a number of mechanical and electrical sweep methods.

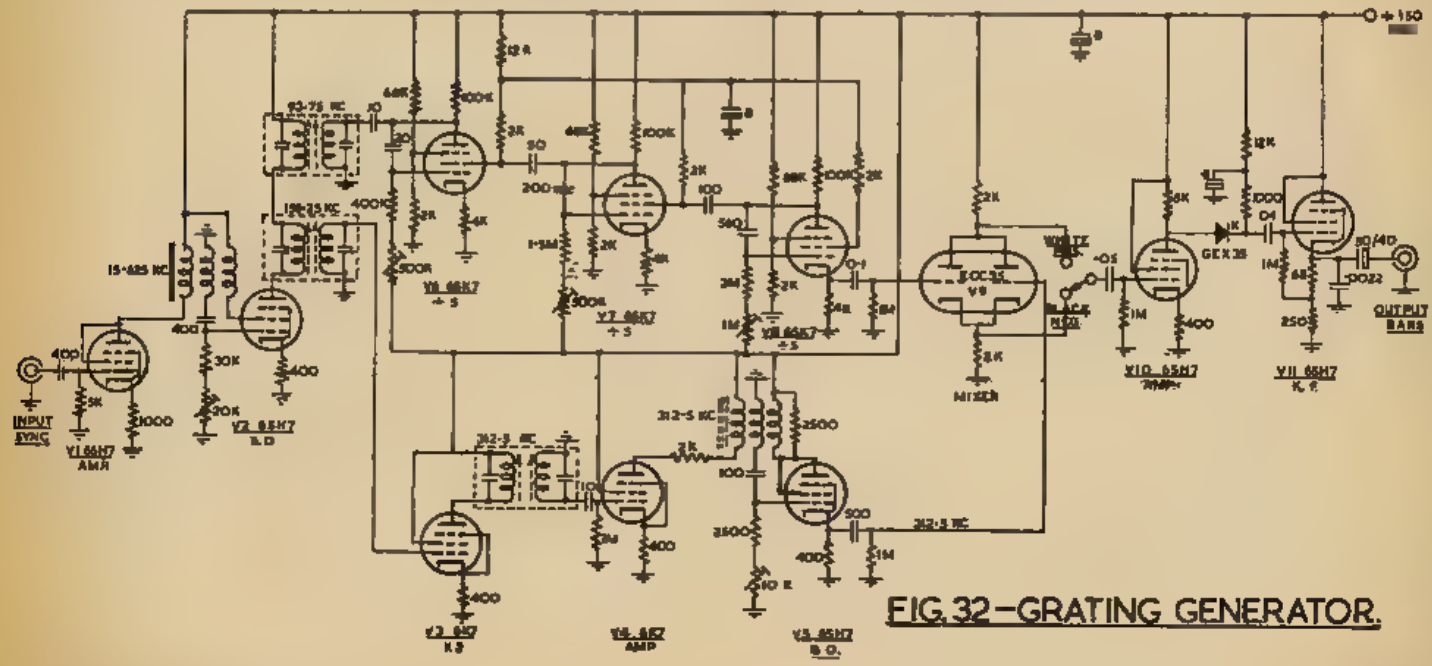

FIG. 32—GRATING GENERATOR.

Video Sweep Generator

In this generator, the fixed oscillator operates on 16.5 Mc. doubling to 33 Mc. The swept oscillator is a reactance tube type, on a fundamental frequency of 11 to 13 Mc., and tripled. The sweep is unidirectional or offset, with 11 Mc. as the rest frequency, by means of the bias arrangement in the sawtooth output circuit.

The 11 to 13 Mc. sweep is passed through a tripler limiter, and mixed in a germanium diode with the fixed 33 Mc. The 0-6 Mc. video output, is amplified in a video amplifier, and about 1.0 volts peak to peak is available from the cathode follower output. See Fig. 33.

The sawtooth generator V1 is a blocking oscillator at 25 c.p.s. synchronous with the mains. The sawtooth, of amplitude 5 volts p./p. is biassed with —5 volts to make it unidirectional in polarity, and then fed through a potentiometer (**sweep width**) to the reactance modulator. As the maximum percentage deviation required is high, 2 Mc. in 11 Mc., a cathode follower type reactance tube modulator is used (V2, V3), varying the frequency of the oscillator tube V4, tripling in its plate circuit. In order that the zero video frequency, which occurs at about 50 Kc. before locking of the two oscillators takes place, should always be at the left of the c.r.o. display, regardless of sweep width, a **set zero** control is provided, which corrects zero drift.

The two-stage 33-39 Mc. amplifier-limiter, V5, V6, uses over-coupled transformers for flat response. Details of these transformers T1, T2, T3 are shown in Fig. 34. Tuning of primary and secondary is by means of a twisted pair of 22 gauge plastic wires, about ¾" long.

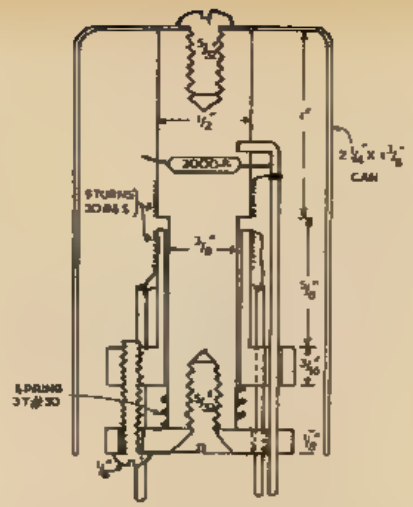

FIG. 34—33-39 MC TRNSFMR

The coupling between primary and secondary is variable, and this is used in final adjustment to flatten the swept video output level over the full range.

The fixed oscillator V7 uses the grid-screen circuit for the oscillator on 16.5 Mc., and doubles in its plate circuit in the transformer T3. It was found that if the tube was worked on the fundamental, its frequency was pulled by the swept oscillator, and locking occurred. The mixer diode is an OA54, having a 1,000 ohm load, feeding the grid of the video amplifier V8. Output at low impedance is available at the co-axial output connection from the cathode follower V9. C.r.o. sync. is effected from the positive pulse from the cathode of V1, at 25 p.p.s., fed to another co-axial outlet.

Detector Probe

This is shown in Fig. 35. The germanium diode, resistors and capacitors are mounted in a small plastic pill box, shielded inside, with a short low capacitance probe mounted on one end. It introduces about 1.5 pF. additional capacitance, and this can be ignored on low impedance circuits and allowed for on high. Its output can be taken to the vertical amplifier of any standard c.r.o.

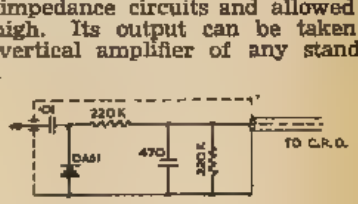

FIG. 35—PROBE

Operation

The sweep generator injects a signal at the appropriate level and impedance to the unit under test, and the probe is coupled across the correctly terminated output. The level of the detected envelope of the swept video is displayed on the c.r.o. screen as a line as in Fig. 36A. As it stands it is meaningless, as the reference zero is missing.

In the c.r.o. used, a car radio type vibrator, its reed loaded with wax to resonate at 50 c.p.s., is run from the filament line and is arranged to short circuit the probe output at 1/100 second intervals. This dots in the zero base line and enables the deviation of the trace from the ideal straight line to be assessed. See Fig. 36B. The response of the individual units must be very good, as a 1 db. droop per unit, results

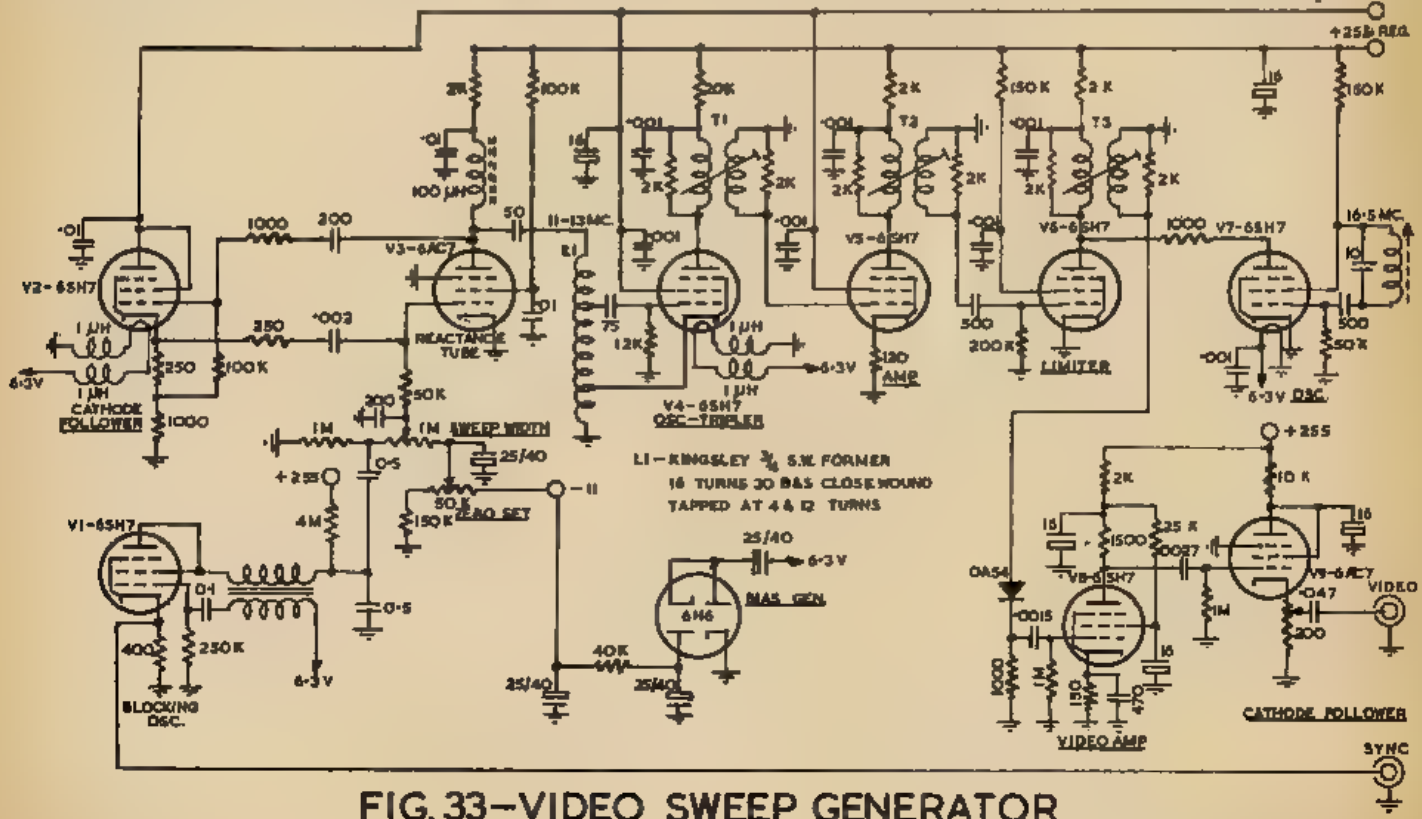

FIG. 33—VIDEO SWEEP GENERATOR

in 3 db. over 3 units, which is excessive. Each unit should be flat ± 5% (0.5 db) to at least 5 Mc. and the overall response of the system flat to 20% (2 db.).

Frequency Marker

A service type oscillator can be used to inject a marker signal into the probe input, at a frequency between 100 Kc. and 6 Mc., to mark any part of the curve. Do not leave it connected to the probe while in use, as it may overload the video amplifier and modify its response. I find that with about 1 volt output from the marker, stray capacitance will usually give enough coupling to provide a mark, when the oscillator output lead is placed close to the probe tip.

FIG.36—C.R.O. DISPLAY

Low Frequency Response

Poor low frequency response implies either low frequency droop, or low frequency phase shift. Amplitude fall-off is serious, but l.f. phase shift is disastrous. Normal RC couplings between stages cause low freqeuncy phase shift, the phase becoming more advanced as the frequency is lowered. All the circuits described to date use l.f. compensation to maintain phase and frequency response within commercial limits. One of the best methods of checking these factors is by means of a square wave at about 50 c.p.s.

Note.—It is impossible to check with a low frequency square wave, any circuit incorporating keyed clamps. Unless a special generator is used, giving a signal with horizontal blanking pedestals inserted in the square wave, the clamps will treat the square waves as hum, and obliterate them with results similar to severe differentiation. The clamps will, however, restore a signal with a poor low frequency response, so square wave checking through them should be unnecessary.

Square wave methods can be used in the camera and monitor, which have no clamps, and through the c.c.u., where blanking pedestals are inserted before any clamping occurs. The technique is to inject a square wave into the unit under test and examine the waveform delivered, by a c.r.o. The square wave must be above suspicion with less than 1% of tilt (sag), and a suitable squarer, a cathode coupled double clipper, is shown in Fig. 37.

This will clip a sine wave of any frequency from 15 c.p.s. to 20 Kc., of amplitude 5 to 50 volts r.m.s., to a square wave with less than 1% tilt. In

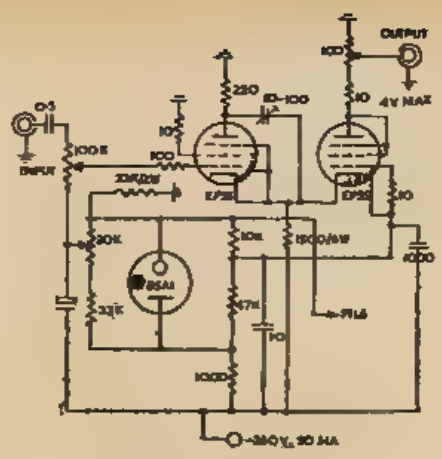

FIG.37—CLIPPER.

this cathode coupled clipper, only one tube can conduct at a time and the changeover is extremely rapid. Note that h.t. + is earthed, and the output is taken from the anode circuit **without** a coupling capacitor. The potentiometers in the input circuit adjust the clipping levels and hence the mark-space ratio. For our purposes, 1:1 is most suitable.

The c.r.o. too must be above suspicion and should be checked in advance by examination of the square wave from the clipper. If there is any detectable tilt, it is in the c.r.o. and must be allowed for in evaluating the displayed waveform. Referring to Fig. 38A, this waveform is within limits of less than 3% tilt at 50 c.p.s. Fig. 38B shows good frequency response, but leading l.f. phase shift due to insufficient compensation, the most common condition.

Fig. 38C shows good frequency response, but l.f. lagging phase shift due to overcompensation. Fig. 38D shows poor l.f. response, but no phase shift. Poor l.f. response usually occurs in conjunction with leading phase shift. Fig. 38E shows a rising l.f. response, but without phase shift, and usually occurs with a lagging phase shift, due to overcompensation.

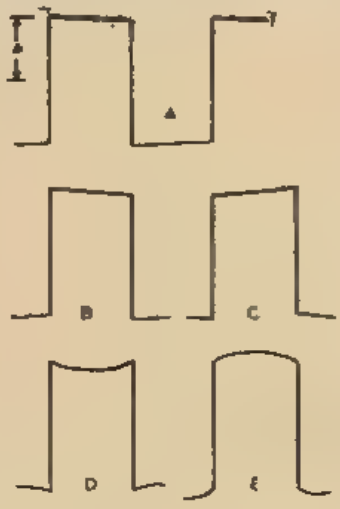

FIG. 38.

An overall check on l.f. and m.f. response can be obtained by use of a streaking chart, such as that shown in Fig. 39.

This chart, when used before the camera, effectively generates a series of square waves, of progressively longer duration. These run from 0.133 μsec. on block 1 to 37.5 μsecs. on block 15. When transmitted through the system, the following effects may be noted:

1. Ringing after blocks 1, 2, 3 or 4 showing a peak in h.f. response in the region 1 Mc. to 5 Mc.
2. Black streaks after any or all blocks, indicating excessive l.f. response and lagging phase shift.
3. White streaking (overshoot) after any or all blocks, indicating reduced l.f. response and leading l.f. phase shift. These two latter conditions are used to set up correct camera high peaking.

Using the chart, the high peaker is adjusted to the point where the streaking following the blocks just changes sign from black to white. It is most sensitive on the smaller blocks. Slight h.f. overcompensation gives slight overshoot into the white and gives crisper pictures, but tends to cause ringing. Taken to excess, it gives an apparent negative picture or bas relief effect.

Note.—The chart must be aligned such that the blocks are parallel to the scanning lines. This can be adjusted by noting the position giving maximum streaking or overshoot. If the chart is levelled, it is the best on which to adjust camera yoke orientation for a truly horizontal scan.

The chart is 12" x 16" and the physical length of each block and the corresponding duration in microseconds is tabulated below:

Block No.	Length inches	Duration μsecs.
1	0.04"	0.133
2	0.06"	0.2
3	0.09"	0.3
4	0.135"	0.45
5	0.2"	0.67
6	0.3"	1.0
7	0.45"	1.5
8	0.675"	2.25
9	1.0"	3.3
10	1.5"	5.0
11	2.25"	7.5
12	3.375"	11.25
13	5.0"	16.5
14	7.5"	25.0
15	11.25"	37.5

The chart can be on white showcard paper in Indian ink, the 5 μsec. timing bars after the blocks are 1.5" apart.

System Gamma

This can only be checked with a chart having a grey scale, and would be very difficult to make up with inks. I use a photostat of the R.M.A. resolution chart, which has four 10-step grey scales. The original was very good, being a full page illustration in an old copy of the Proceedings of the I.R.E. (U.S.A.), but I am unable to quote which issue. One shown in Ennes' "Principles and Practices of Telecasting Operations", page 265, is only fair, but seems to be the best published in standard text books.

A 16" x 12" or larger copy of this chart would be of great value for streaking, resolution, interlace and gamma checking, and those interested

will probably be able to locate a chart or have one copied.

For checking gamma, the camera views the chart and the system adjusted for the best picture and the correct levels. Then the monitor is used to check that:

1. The video levels are correct for full black and white.
2. The monitor shows optimum rendition of full black and white from the chart.

Then if the system gamma is correct, each of the ten steps of the grey scale should be clearly visible. If not, adjust the "**set gamma**" control, making sure that the system gain and the output levels remain constant the while. If a compromise is necessary, some degree of white compression is less objectionable than black compression.

Pulse Duration, Rise and Fall Times

The A.B.C.B. has laid down standards for sync. and blanking pulses, a copy of the Standards being available from the Board on request. Measurement of pulse duration can easily be made by the "Pulse Cross" display described in Part 6, published in August, but evaluation of pulse rise and fall times is not so easy.

In the equipment described, the sync. and blanking pulse rise times are all well within the specifications at all points in the chain. Measurement is best done with a c.r.o. of wide bandwidth, 3 Mc., or better, and triggered sweep, in order to be able to display a pulse over a large part of the screen. The rise and fall time for all horizontal pulses is between 0.2 and 0.4 μsec., measured from levels 10% to 90% of maximum amplitude.

A method of measurement, using normal sweep, is as follows: Display two pulses on full screen, say 4" from leading edge to leading edge. This is 64 μsecs., i.e. 16 μsecs. per inch. Check the pulse width, and adjust to the standard. If a sync. pulse, adjust to 5 μsecs., i.e. 5/16".

Now using sweep expansion, spread one sync. pulse as wide as possible, say 1". Measure now from 10% to 90% of the height, the rise and fall times should be less than 0.4 μsec., which is 0.08" say 5/64".

These tests enable a complete evaluation of the performance of a camera chain, and the use of the three charts, linearity, streaking and R.T.M.A., enable periodic checks to be made quickly.

I had hoped to be able to describe the video c.r.o. in this part, but as a complete description is too lengthy, it will be dealt with in full in Part 8 next month. This extends this series to nine parts, the final instalment in November dealing with the transmitter.

— • • • —

NEED SOME POLYSTYRENE CEMENT?

If so, make it yourself, cheap, too

First off, get an empty nail polish bottle from the XYL. A few minutes with some acetone and you will have a clean and compact bottle, holding enough cement to last for some time, complete with applicator brush. If the bottle has a plastic insert which is intended to prevent spilling, discard this.

By some diligent shopping in one of the chain stores, you will discover some small cheap article made of clear polystyrene. Since this is likely to be an attractive item in the eyes of either the XYL or junior op., keep it from view until you get home. Now cut pieces from this article, side-cutters are best for this job, the pieces sufficiently small to go into the nail polish bottle.

Fill the bottle with chloroform except for a space of about ¼" at the top. Put in the pieces of poly, which will dissolve in an hour or two.

The polystyrene to chloroform ratio is purely a matter of preference, but a fairly thick solution is best for coil doping. On the other hand, you will use most of this cement for repairing many of the plastic toys, rattles, refrigerator dishes, etc., which are available these days, for this a thin solution is better. The writer's junior op. has a plastic duck, essential bath equipment, of course, which has been repaired 17 times to date. Oh yes—clear poly is recommended partly to avoid any possible trouble with dye material where there is r.f., and also because pink cement looks somewhat out of place on a yellow duck!

If you want a slow-drying solvent, use xylol. For a quick-drying solvent, use tri-chlor-ethylene.

—Reprinted from "Break In," Jan., '58.

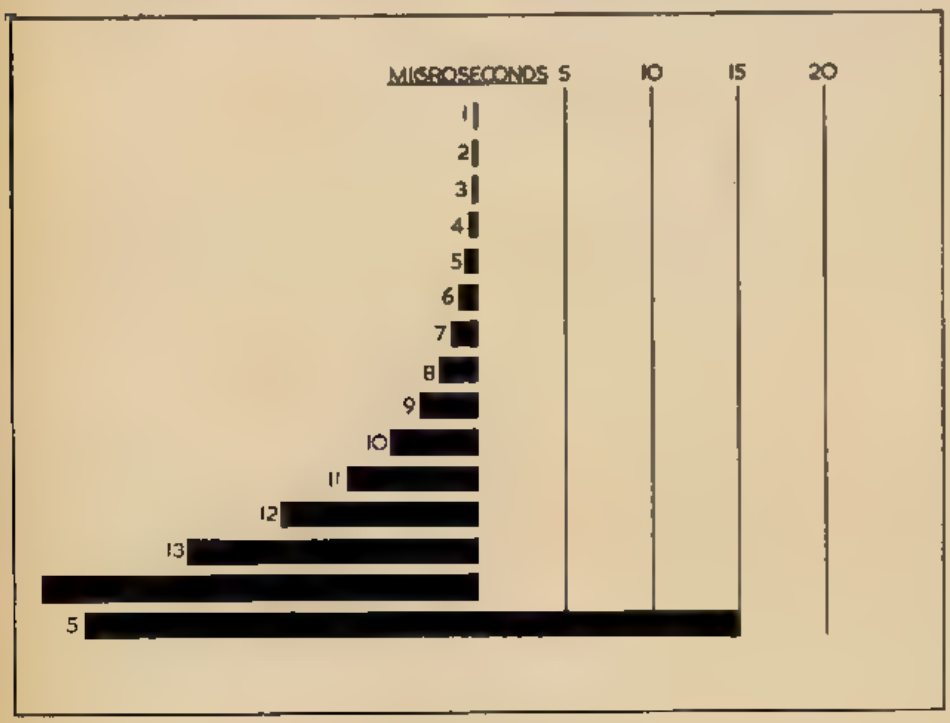

FIG 39—STREAKING CHART

Low Drift Crystals

FOR

AMATEUR BANDS

ACCURACY 0.02% OF STATED FREQUENCY

3.5 Mc. and 7 Mc.

Unmounted **£2 10 0**

Mounted **£3 0 0**

12.5 and 14 Mc. Fundamental Crystals, "Low Drift," Mounted only, £5.

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MEET THE OTHER AMATEUR

AND HIS STATION

ARNOLD HOLST*
VK3OH

ARNOLD Holst was born in Ballarat, Vic., in 1897 and is the eldest of three pioneer Ham brothers—Arnold, Hector (deceased), and Otto (VK3BY). Arnold's licence was issued in January 1914 with the call sign XPH. From 1916 to 1919 he saw service in the 1st Australian Wireless Signal Squadron in Mesopotamia and Persia using mobile Marconi 1½kw. and ½kw. spark transmitters.

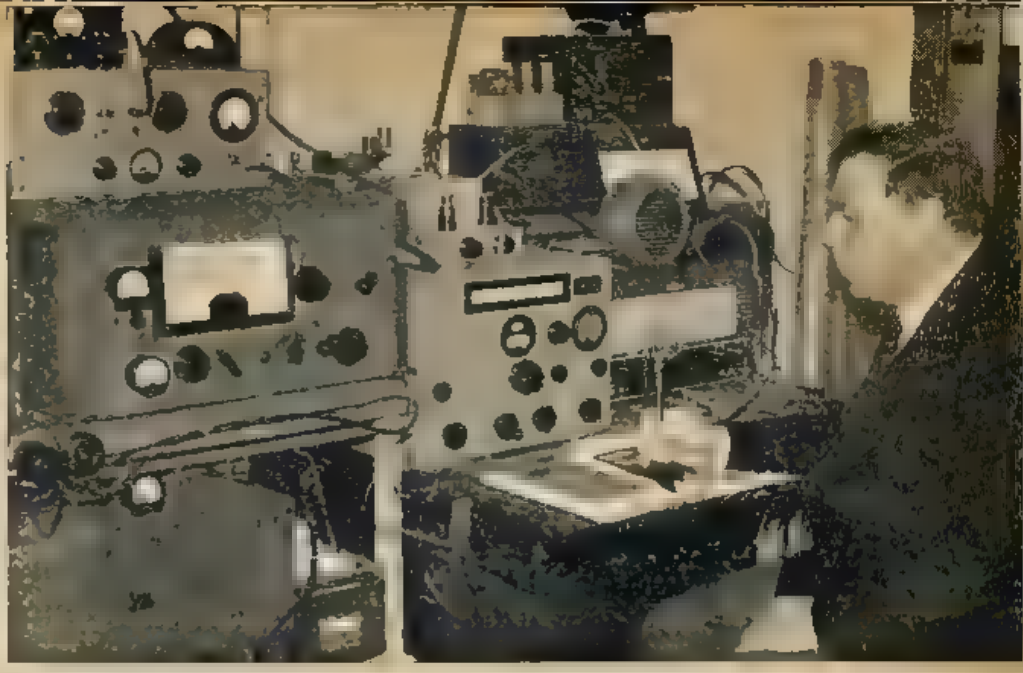
Arnold became active again about three years ago and is still happy to feel a morse key under his fist.

The five-band 100 watt transmitter uses a Geloso v.f.o. unit into a pair of parallel 6146s with pi output.

The unit above the transmitter contains a low-pass filter for t.v.i., reflected power meter and outgoing power meter, and an all-band aerial coupler. Sitting on top of this is a percentage modulation meter and the matching box of the Panda G4ZU beam.

Below the transmitter is a Type "S" power pack which supplies h.t. for the 6146s only and 12 volt relay supply.

* 10 Flintoft Avenue, Toorak, Vic.



The Geloso h.t. supply power pack is out of the picture. Also not in view is the modulator using 807s in class B zero bias and its power pack.

The receivers are Eddystone 680X and Marconi CR100.

The antenna system consists of a Panda G4ZU beam for 20, 15 and 10 meters and a 67 ft. long horizontal end-fed through a linear transformer, 34 ft. long and 300 ohm ribbon for 40 metres.

The shack is an upstairs room in the house. The mast for the beam is attached to the house about six feet from the shack window and rests in a car steering box, the column of which is brought through a hole in the window frame.

The long tube-like objects against the corner of the shack are not old tuning inductances for 100,000 metres, but rolls of artist's canvas. Painting and sketching in oils shares with Ham Radio VK3OH's spare time.

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A.W.A. Mod. Osc., battery operated, £15/0/0.

U.H.F. Transmitter, consisting of cavity type osc., 807 p.a., 230v. a.c., h.t. 1700v. 150-200 mA. Approx. operating freq., 3500 Mc. £5/0/0.

U.H.F. Receiver, cavity type osc., motor and manual tuning. Six stages of i.f. at 45.5 Mc., operating freq. 9500 Mc. Some at £4/0/0, others £5/0/0.

Test Oscillator Unit, 230v. a.c. — 300v. (approx.) 100 mA. Rect. 5U4G. Test freq. 800 c.p.s. and 1600 c.p.s. Host of useful parts, £4/0/0.

Power Transformers, 230v. a.c. input. Double wound sec. 155v. each, 200 mills., £1/0/0.

Fil. Transformer, 230v. input, two 6.3v. at 1.7 amp., two 6.3v. 0.6 amp., one 6.3v. at 10 amp., 35/-.

Hallicrafters S40A Communications Receiver, excellent condition, £45/0/0.

Strip of four EF50s, plug, resistors, condensers, pots and trimmer, £1/0/0.

Six inch C.R.O. Indicator Unit, tube ACR13, own power supply, 2500v. d.c. (including two EF50s). Excellent for modulation indicator, panadapter, etc. £10/0/0 each.

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SPECIAL ISSUE OF "AMATEUR RADIO" NEXT MONTH

With the October issue, "Amateur Radio" celebrates the 25th Anniversary of its publication as the official journal of the Wireless Institute of Australia. The Publications Committee is grateful to J. H. Magrath & Co. Pty. Ltd. for vacating the front cover so that a special design, in keeping with 25 years of service to the Amatsur, can be printed thereon.

Through the co-operation of old and new advertisers, many more pages will be included in this special edition. Featured articles will be:

- ★ An H.F. Transistor Receiver.
- ★ The W.I.C.E.N. V.H.F. Communicator.
- ★ Construction of a Grid Dip Oscillator.
  Oscillator and use of same.
- ★ A Video Oscillograph in the series of Amateur Television.

In addition many more articles and items of general interest will be included.

May we suggest that you tell your friends so that they will not miss this issue. As only a limited quantity of extra copies will be printed, it will be to their advantage if they order their copy of the October issue of "Amateur Radio" in advance.

Maybe you would like some extra copies for your Overseas Amateur friends. If so, place your order immediately with the W.I.A., Victorian Division, 191 Queen St., Melbourne, C.1, and we will post a copy direct, for the sum of 1/9 including postage.

VK-ZL DX CONTEST, 1958

Note changes in scoring for VK-ZL stations. These should make the Contest more interesting. Note overseas scoring different to that used by VK-ZL stations.

N.Z.A.R.T. and W.I.A., the National Amateur Organisations in New Zealand and Australia invite world-wide participation in this year's VK-ZL DX Contest.

Objects: For the world to contact VK and ZL stations and vice-versa.

When? Phone—24 hours from 1000 GMT, Saturday, **4th October**, to 1000 GMT, Sunday, **5th October.**

C.w.—24 hours from 1000 GMT, Saturday, **11th October**, to 1000 GMT, Sunday, **12th October.**

Duration for all contestants is 24 hours.

RULES

1. There shall be three main sections to the Contest—
   (a) Transmitting Phone.
   (b) Transmitting C.w.
   (c) Receiving—Phone and C.w.

2. The Contest is open to all licensed Amateur transmitting stations in any part of the world. No prior entry need be made. Mobile Marine or other non-land based stations are not permitted to enter the Contest.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. C.w. will be used for the **second** week-end and Phone for the **first** week-end. Stations entering for both Phone and C.w. must submit entirely separate logs for each.

5. Only one contact per band is permitted with any one station for Contest purposes.

6. Only one licensed Amateur is permitted to operate any one station under the owner's call sign. Should two or more operate any particular station, each will be considered a competitor, and must submit a separate log under his own call sign.

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) reports plus three figures which may begin with any number between 001 and 100 for the first contact, and which will increase in value by one for each successive contact, e.g. if the number chosen for the contact is 053, then for the second contact the number must be 054, for the third 055, and so on. If any contestant reaches 999, he will start again with 001.

9. **Scoring:**
(a) **Overseas Stations:** One point will be scored for each contact on a specific band with any VK-ZL district. The final score will be derived by multiplying the total contacts on all bands by the total number of VK-ZL districts worked on all bands. These are ZL1, 2, 3, 4, 5, VK0, 1, 2, 3, 4, 5, 6, 7, 9.
(b) **VK-ZL Stations:** FIVE points for each contact on a specific band with an overseas station and in addition, for each new country worked on that band, BONUS points on the following scale will be added—

1st	contact	50 points.
2nd	contact	40 points.
3rd	contact	30 points.
4th	contact	20 points.
5th	contact	10 points.

For this purpose the A.R.R.L. countries list will be used with the exception that each call area in U.S.A. will count as a scoring area.

10. **Logs:**
(a) **Overseas Stations:** (i) Must show in this order—date, time in GMT, call sign of station contacted, serial number sent, serial received, band used. **Underline** each new VK-ZL district when contacted and use **separate log for each band.**

(ii) **Summary sheet** to show—call sign, name and address (block letters), details of rig, TOTAL SCORE by showing total of districts worked on all bands and total contacts on all bands. (Districts multiplied by contacts equals Total Score.)

(b) **VK-ZL Stations:** (i) Must show in this order—date, time in GMT, call sign, of station contacted, serial number sent, serial number received, band of operation, **contact points, bonus points. Use a separate log for each band.**

(ii) **Summary sheet** to show call sign name and address in block letters, and **score for each band** by adding contact points and bonus points for that band and TOTAL SCORE by adding scores together. Details of equipment used—receiver, antennae, transmitter and power used.

11. Declaration to be attached to all logs: I hereby certify that I have operated in accordance with the rules and spirit of the contest.

12. The right is reserved to disqualify any entrant who, during the contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics.

13. The ruling of the Executive Council N.Z.A.R.T. will be final.

14. **Awards:** (a) VK-ZL Stations: Certificates will be awarded by N.Z.A.R.T. to the top scorer on each band and the top scorer in each VK-ZL district. The top scoring ZL in c.w. and also in Phone will receive a suitable plaque.

(b) Overseas Stations: Certificates to the top scorer in each scoring area. Additional certificates will be awarded depending on the number of logs received, e.g. to high scorers on different bands and place winners.

15. **Entries** from VK-ZL stations must reach N.Z.A.R.T. Contest Manager, ZL2GX, 86 Lytton Rd., Gisborne, N.Z., before 20th December, 1958. From Overseas stations must reach N.Z.A.R.T., Box 489, Wellington, N.Z., before 23rd January, 1959.

RECEIVING SECTION

1. The rules are the same as for the transmitting section, but it is open to all members of any Short Wave Listeners' Society in the world. No transmitting station is permitted to enter this section.

2. The Contest times and logging of stations on each band per week-end are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section but will omit the serial number received. Logs must show the call sign of the station heard (instead of "worked"), the serial number sent by it, and the call sign of the station being called.

Scoring will be on the same basis as for transmitting stations. **It is not sufficient to log a CQ.**

4. VK receiving stations may log overseas and ZL stations, while ZL receiving stations may log overseas and VK stations.

5. Certificates will be awarded to the highest scorers on the same basis as for the transmitting stations.

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PEOPLE WHO KNOW....

The Engineer

Most people take their radio sets for granted. Few indeed appreciate the high degree of technical knowledge and constant attention that is necessary to keep the various sections of a modern-day broadcasting station functioning smoothly.

To the radio engineer, the "Broadcasting Transmitter Installation" shown above is the very heart of the broadcasting station. Without this complex piece of equipment, the wide variety of programmes produced in the studio could never be transmitted.

A most interesting fact concerning transmitter operation is that, like home radio sets, it depends on reliable electronic valves for continuous, trouble-free operation. A further interesting fact is that the Australian valve most used in equipment of this type is Radiotron.

Follow the example of the Australian Radio engineers:

VCS.58

CHOOSE RADIOTRON

Manufactured by . . .

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NATIONAL FIELD DAY, 1959

(Draft Rules to be ratified by all Divisions on or before 30th September, 1958)

The Federal Contest Committee of the Wireless Institute of Australia invites all operators of portable, mobile and fixed Amateur stations to participate in the 1959 National Field Day Contest.

Objects: The operators of portable and mobile stations within the Commonwealth and its Mandated Territories will endeavour to contact other portable, mobile and fixed stations, both **within their own State and in other parts of the Commonwealth.**

Date of Contest: The Contest will be held on the Sunday preceding Australia Day, that is **25th January, 1959.**

Duration. The Contest will commence at 0900 hours and end at 2100 hours E.A.S.T. on the above date.

RULES

1. The Contest shall be an Open Contest, divided into the following Sections:

A.—Single Operator—Transmitting:
(1) Portable or Mobile H.F.
(2) „ „ V.H.F.
(3) Fixed H.F.
(4) „ V.H.F.

B.—Multiple Operators—Transmitting
(1) Portable or Mobile H.F.
(2) „ „ V.H.F.
(3) Fixed H.F.
(4) „ V.H.F.

C.—Receiving:
(1) Fixed or Portable H.F. and V.H.F.

2. All Australian Amateurs may enter the Contest. Mobile or Portable Stations are limited to an input power, with aerial connected of 25 watts to the final stage. This power shall not be derived from either private or public mains.

A Portable or Mobile Station shall not be located within a radius of one (1) mile from the home(s) of the operator(s), nor be situated in any occupied dwelling or building.

No apparatus shall be set up at the site selected for portable operation earlier than 24 hours before the commencement of the Contest.

A Portable Station may be moved from one site to another during the Contest.

More than one transmitter may be used and in the case of the multiple operators' section, several bands may be used simultaneously.

3. All Amateur frequency bands may be used, but no cross-band operating is permitted.

4. Amateurs may enter for **one** of the above sections listed in Rule 1. Any emission may be used during the Contest providing all such emissions comply with paragraphs 85, 86 and 87 of the current Regulations.

5. Only one contact per station per band is allowed and arrangements for schedules for contacts on other bands is not permitted.

6. More than one operator may participate in the operation of the Portable or Mobile Station provided that all operators are licenced Amateurs. (Refer also to Rule 14.)

7. Entrants must operate within the terms of their licences.

8. **Cyphers:** Before points may be claimed for a contact, serial numbers must be exchanged and acknowledged. The serial number of five or six figures will be made up of the RS (telephony) or RST (c.w.) report plus three figures which may begin with any number between 001 and 100 for the first contact and which will increase in value by one for each successive contact, e.g. if the number chosen for the first contact is 053, then for the second contact the number is 054, for the third 055 and so on. If any contestant reaches 999 he will start again at 001.

For checking purposes only, the location of the Portable or Mobile Station worked should be shown alongside each contact in the log.

9. **Entries** must be set out as shown in the example, using only one side of the paper. Entries must be postmarked not later than Saturday, 14th February, 1959, and addressed to the Federal Contest Committee, W.I.A., Box 1234K, G.P.O., Adelaide, South Australia.

10. **Scoring** will be based on the table shown.

Scoring Table

Portable and Mobile Stations:

(a) For contacts with Fixed Stations within the competitor's own State ... ... **2 points.**
(b) For contacts with Fixed Stations outside the competitor's own State .... **3 points.**
(c) For contacts with other Portable or Mobile Stations within the same State ... ... **5 points.**
(d) For contacts with other Portable or Mobile Stations outside the competitor's own State .... **10 points.**

Fixed Station

(e) For contacts with Portable and Mobile Stations in the Contest within the same State **2 points.**
(f) For contacts with Portable and Mobile Stations in the Contest outside of the State **5 points.**

The following constitute Call Areas: VK1 (A.C.T.) and VK2 combined, VK3, VK4, VK5 (South Australia), VK5 (Northern Territory), VK6, VK7, and VK9.

11. **Logs:** All logs shall be set out as in the sample shown and in addition will carry a front sheet showing the following information:
Name ..... Section
Address Call Sign
Call Signs of other Operators
Location(s) of Portable Station
from hours to hours
from hours to hours.

Portable or Mobile Stations to include on this front sheet a brief description of the equipment used including the h.t. voltage and power input to the final amplifier of the transmitter.

Declaration: I hereby certify that I have operated in accordance with the rules and spirit of the Contest.
Signed
Date

12. The right is reserved to disqualify any entrant who, during the Contest, has not observed regulations or who has consistently departed from the accepted code of operating ethics. Portable procedure must be used at all times.

13. The ruling of the Federal Contest Committee of the W.I.A. will be final. No dispute will be entered into.

14. **Awards:** Certificates will be awarded to the highest scorer in each section set out in Rule 1.

Certificates will also be awarded to the highest scorer in each State in each section if the scoring is considered adequate.

Further certificates may be granted at the discretion of the Contest Committee.

In the case of a winning station being manned by more than one operator, each operator will receive a certificate provided that he has contacted at least 25% of the stations submitted on the log, and that he has signed the log declaring this to be true.

RECEIVING SECTION

1. The rules are the same as for the transmitting sections and it is open to all Short Wave Listeners in the Commonwealth and Mandated Territories.

2. Contest times and logging of stations on each band are as for the transmitting section.

3. To count for points, logs will take the same form as for the transmitting section, but will omit the serial number received. Logs must show the call sign and location of the station heard (instead of worked), the serial num-

(Continued on Page 17)

EXAMPLE OF TRANSMITTING LOG

Date/ Time E.A.S.T	Band	Emission	Call Sign	RST/NR. Sent	RST/NR. Revd.	Location Station Worked	Points Claim.	Blank

Note.—The standard W.I.A. Log Sheet follows the above form.

EXAMPLE OF RECEIVING LOG

Date/ Time E.A.S.T.	Band		Call Sign Heard	RST/NR. Sent	Station Called	Location Station Heard	Points Claim.	Blank

Note.—The standard W.I.A. Log Sheet follows the above form.

I.T.U. FUND DONATIONS

Listed below are further subscribers to the fund to send an Amateur delegate to the International Telecommunication Conference at Geneva in July 1959. The fund is steadily growing, but the initial influx of donors has decreased to a steady stream. There are still a large number of Institute members and others who, for various reasons, may not have yet sent in their donations. We sincerely enjoin them to make an effort to do so in the next month, for our aim is £2,500 to be raised by December. When it is considered that our delegate may have to remain in Geneva for a period of 3 to 5 months, our objective is not too high bearing in mind air fares, cost of living in Europe and compensation for salary loss.

Some queries have been received from contributors as to why their donations have not been previously acknowledged in this column as they donated early in the appeal. We can only apologise for these omissions by saying that these delays have occurred through remittance of monies from the Divisions. All donations received direct by the Federal Executive have been acknowledged without delay and will continue to do so.

Please keep your donations rolling in and forward to:—

Federal Secretary,
Box 2611W, G.P.O.,
Melbourne, C.1, Vic.

The following is a list of contributions to 31st July, 1958: —

£5/5/0
E. M. Fanker, VK2HS; M. A. Brown, VK3OR; Geelong Amateur Radio Club, VK3ATL.

£5/0/0
J. McN. Ferrier, VK3MC.

£4/0/0
Victorian Far North Western Zone.

£3/0/0
A. E. R. Wood, VK3ZAE.

£2/2/0
E. H. Cox, VK1GU; M. Folie, VK3MZ; L. P. Moncur, VK3LN.

£2/0/0
D. Soraghan, VK2PU; F. C. Tregurtha, VK-2FT; H. B. Bodkin, VK2KV; W. R. C. Stevenson, VK3AWS, A. W. H. Chandler, VK3LC; A. R. Williams, VK3WE; D. G. Baulch, VK-3ZCX, B. S. Baulch, VK3ZCQ; N J. G. Watling, VK4WT, P H. Syme, VK5KB, B. H Bussenschutt, VK5OR; B. O'Connor, VK6BP.

£1/12/0
B. H. Gates, VK6KJ.

£1/10/0
M. H. Stuckey, VK2ARF; P. D. Williams, VK3IZ, A. C. Hawker, VK3IB; A. Heath, VK-5ZX; W. A. P. Luke, VK9WP.

£1/5/0
A. H. Sandilands, VK0AS; G. Rutter, VK2CB.

£1/1/0
A. G. Sabin, VK2AGS; J. B. Williams, VK-2AYW; K. Phillips, VK3AEP, R. W Easterbrook, VK3RM; D H. V. Rankin, VK3ZAQ; A. Pritchard, VK3CP; R. W Badrock, VK3ZGC; D. A. Wardlaw, VK3ADW, P W Hay, VK4PH; L. H. Cox, VK4LE, H. J. Townsend, VK5HT; R. G. Haskard, VK5RH, A. E. Shepard, VK5DC; I. Thomas, VK5IT; D. Couch, VK6WT.

£1/0/0
R. May, VK1FM.

K. Mitchelhill, VK2ANU; T. Bremner, VK-2ANV; T. Stockman, VK2ATS; O. Oliver, VK-2AZX; D. Vaughan, VK2FY; G. Hodgson, VK2OH; C. G. Smith, VK2TW; G. Chapman, VK2AIT, S. Ward, VK2SW; T. Thorpe, VK2TL; W. Wilson, VK2XK; R. Reynolds, VK2AFR; H. Harman, VK2GH, R. Sargent, VK2HM, T. Newport, VK2JF; J Moen, VK2ZZ——; N. Laffman, VK2APL; G. Wheaton, VK2AWW.

K. Pincott, VK3AFJ; L. Weller, VK3AIW; G. Fowles, VK3AMF; R. Pope, VK3ARP; R. Stephen, VK3ARS; S. Clark, VK3ASC; A. Lock, VK3AUL; C. Cullinan, VK3AXU; T. Baker, VK3DK; G. Lance, VK3DS, A. Zander, VK3PG, A. Buesst, VK3ZBZ, R. Rutledge, VK3ZQ, N. Felstead, VK3AAI; T. Challis, VK-3AAT, R. Abbott, VK3ABB, C. Arnold, VK-3AJA, K Lloyd, VK3AKF, J. Fryer, VK3AQF; C. Pickering, VK3ATP, R. Burbridge, VK3AVB; G. Mackay, VK3AWP; S. Bryant, VK3CI; H. Hodge, VK3HE, C. Rainbow, VK3JR; A. Kistick, VK3KB, R. Fisher, VK3QM, R. Bowen, VK3ZAD, A. Pridgeon, VK3ZCP; D. Johns, VK3ZDJ; D. Watson, VK3ZEK, F. O'Donnell, VK3ZU; G. Braddock, VK3AGL; H. Kellas, VK3AHK; L. Burston, VK3AZB, G. Turner, VK3GN, Mrs. M Williamson, VK3HQ; W. Iliffe, VK3OY, R. Sankey, VK3XP; D. Tanner, VK3ZAT, G. Sheeran, VK3AGS; H. Gale, VK-3AJG; J Spark, VK3AJK; W Sievers, VK3CB; L. Thompson, VK3LT; R. McDonald, VK3MD; L. Money, VK3MY, C Hyatt VK3XH, D. Hale, VK3DE; A. Giddings, VK3DG, G. Kidson, VK3——; C. Stilwell, VK3ACN; B. Gillies, VK3AGG, I. Berwick, VK3ALZ; P. Linden, VK3ZAF; A. R. Adam.

Central Technical College, VK4CT; A. Price, VK4PA; H Hilder, VK4HH; H. Larsen, VK-4JW, V Green, VK4VS; C. Goodall, VK4GA; H Dearness, VK4KW, R. Wilson, VK4RW; K. Hawkes, VK4HP, M Wratten, VK4MW; N. Dangerfield, VK4ND, J Saunders, VK4ZBR; R. Denby, VK4AX, A. Couper (deceased), VK4BW; J. Taylor, VK4JT; I. Johnson, VK4KL; A. Morrison, VK4MA; M. Hudson, VK4MH, A. Smart, VK4SM; R. Stack, VK4TK, K. Nutt, VK4XD; B. Whitmee, VK4ZW; C. Burns, VK-4ZY; R. Fitzsimmons; D. Gibb; C. Vaughtin.

G. Muirhead, VK3ZCM; A. Williams, VK-5BO, J Sheard, VK5JA, D. Pitt, VK3ZBG, R. Bell, VK5NB, L. Coombe, VK5ZBC; H. Roberts, VK5MY; A. Powell, VK5NP; C. Sappiatzer, VK5SS; B. Edwards, VK5——; J. Trevor, VK5AM, B. Austin, VK5CA; G. Stallard, VK5ES; F Tapley, VK3FT, G. Mathews, VK5GS; J. McAllister, VK5JO; L. Leonard, VK5LT; R. Roper, VK5PU; P. O'Connor, VK-5US, L. Wallbridge, VK5UX; G. P. Bowen, VK5XV, R. Hercus, VK5ZAR; R. G. Bishop; A. R. Haig; R. K. Johnson.

M. Saw, VK6SM; H. Stephens, VK6ZZ; R. Dowsett, VK6RD; A. Eder, VK6ZBE; F. Wright, VK6VR.

K. McCracken, VK7KM; D. M. Slowan.

W Bock, VK9KC.

Under £1/0/0
P. Lowe, VK3ZDO (10/-).

Amendments to Previous Lists:
July List: Delete reference to VK2GK, J. H. Macmillan, and insert instead: V. J. McMillan, VK2AWN, £1.
Amend R. Beasley, VK2VD, to read R. Bensley, VK2XP, £1.
Amend W. A. Cooper, VK2AQX, to read W. A. Cooper, VK2AQI, £1.

The progressive total as at the 31st July is £1,344/2/0.

— . . . —

NATIONAL FIELD DAY, 1959

(Continued from Page 18)

ber sent by it and the call sign of the station being called.

Scoring for both Fixed and Portable Receiving Stations will be on the same basis as for transmitting stations. It is not sufficient to log a station calling CQ.

4. Conditions relating to location and power supply requirements of Portable or Mobile Receiving Stations are as for transmitting stations outlined in Rule 2.

5. A station heard may be logged only once for each band.

6. **Awards:** Certificates will be awarded to the highest scorer, and the highest scorer in each State.

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Frank T. Hine, VK2QL
30 Abbotsford Road,
Homebush, N.S.W.

Conditions for this month have been similar to those existing for June and this opinion is general from overseas stations. Early in the month there was quite a severe disturbance of radio conditions which coincided with the arrival of VK2AIR at Lord Howe Is. for his DXpedition. Such is fate.

In a recent issue I mentioned the well organised DXpedition to Navassa Is. With all the organisation that was put in to it, things went far from well, one reason being the inability to obtain permission to operate from the planned areas. The team consisted of five and each member found himself up for approx. $1000 each by the time they had finished. Any starters for a DX pedition?

Here was an item of vital interest to Amateurs generally, whether DXers or not. As from 10th May, the U.S. Amateurs have lost 1875 to 1927 Kc. and all Amateur bands above 220 Mc. will be on a shared basis. Amateurs must expect interference from the sharing organisations but must not themselves cause any interference. This takes place BEFORE the I.T.U. Conference in a country which is reputed to be pro-Amateur. What action can be expected in countries which do not consider the Amateur of any value to the community. RALLY, BOYS, RALLY, to the I.T.U. Fund to have Australian Amateurs represented.

NEWS AND NOTES

For those interested in keeping abreast of DXpeditions, an ear should be kept on the A.R.R.L. broadcasts through W1AW, where the latest information is given.

Naturally, we must give some details of the Lord Howe Is. DXpedition of VK2AIR, where he operated as **VK2AYY/LH**. The way this went off has resulted in very favorable comment from DX stations. I am hoping to get Alan to write an article for the magazine so will not steal his thunder, but there were some very interesting results and conditions observed, sufficient to prove that Lord Howe Is. is NOT the best place to try for a DX-pedition. Conditions made no attempt to follow predictions. Briefly, 1,800 contacts were made of which 1,425 were Ws (one W asked me when was he going to work W stations) in 43 countries. Best operating time was 170 contacts in one hour. We planned predictions to cover 24 hours except for 30 mins. for our daily sked time. One comment from overseas was "when does he sleep" and the reply, "in the 30 mins. break."

Maldive Is. activity is again in full swing with VS9MA providing the "dog pile". The operator is ex-4S7DT.

VQ9GU (VQ4GU) has been operating from the Seychelles Is., phone only. If he has not closed by the time this reaches you, his activity is mainly 21 Mc., and round 1800-2100z, the only time when the a.c. is available at his hotel, although there have been reports of other times (W4KVX).

Clipperton Is. is expected to show some activity late August or early September if licensing difficulties can be overcome. W6ZVQ is master of ceremonies.

The proposed Andorra DXpedition for July did not eventuate. Plans are in hand for it to be 1959, but no actual dates as yet.

Efforts are being made to get some activity from VU5. VU1HX and other VU's are trying to get licensing matters sorted out so they can operate from the Nicobar Is. VS1BB and others have hopes of being on from there during August or September (W6YY and W4KVX).

MP4BBE and MP4BCK are both active on a.w. from Bahrein Is.

Danny Weil has commenced his move round the Carribean Islands so there is only one safe thing to do and that is keep an eye on the bands, 14 and 21 Mc. c.w. and phone. He got caught in the radio blackout whilst on from YV0 and was a sitting shot as there was no pile up on him from W stations.

VR3A has been discharged from hospital and convalescing in Sydney and has a brand new YL jnr. op. to keep him company (That was not his reason for hospitalisation, though!).

* Call signs and prefixes worked.
z—zero time—G.M.T.

2AOM sez that VR3A has not been able as yet to QSL contacts made since last April but that will soon be attended to.

VK Amateurs have reduced their bad name with SM3CZL. You will find a list in the QSL section of cards he has received since his last letter.

Some EA8s (at Letuan) have now changed their prefix to CN9 (W4KVX).

Chatham Is. is allocated separate country credit as from October 1. QSOs made since 1946 are eligible for credit. ZL3VB is at present active on 3580, but is hoping to get approval for 14 Mc. operation shortly.

Cards for the recent FY8NA DXpedition should be available from the printer about this time (W4KVX).

The June issue of Short Wave Magazine is extremely critical of the present "country" rating farce. There is so much criticism throughout the DX world that I feel something must eventually be done to get something stable into this controversial subject. Whilst it is agreed that this is mainly for credit for an A.R.R.L. Award, the country listing was used by many other organisations as a "yard stick" for their Awards, with the result that many have become unworkable.

From SM3CZL I glean the following information: **ET3TO** is active on 14 Mc. c.w., **ET3XY** on 14 and 21 Mc. c.w. and phone. **FD8DE** active on 14 Mc. c.w. **3A2CE** active on 14 Mc. c.w. **ZD8JP** active on 14 Mc. phone. **MI8** active on 14 Mc. phone. **ST2AR** active on 14 Mc. c.w.

Another for the **YLCC** chasers is ZE7JY (2OW) and **TF3EQ** (SM3CZL).

VK0TC now has only limited operating time (1KB).

G3FBK expects to operate 3A2BT from Monaco during Sept. Exact dates are at present unknown (BERS196).

W4KVX very kindly sent me his DX bulletins 36-38 by air, at 50 cents each, to enable me to have some good DX news in time for this issue. If any of you are interested in keeping abreast of the latest DX news weekly, suggest you contact Don W4KVX or myself for the rates of this service. If you want them by air, it will be quite expensive when you think of 50 cents per copy mailing cost. He provides me, for this page, a copy of each bulletin gratis, normally by surface mail, but unfortunately much of the information by the time it reached you, would be out of date. Now to business. Firstly, an interesting point is raised. During the radio blackout early in the month, he could only hear one S. Pacific station, VK3KB, and his signals came from the North. How???

FK8AS, if he can raise the air fare, hopes to make a flying trip to Wallis Is. and to operate for the two full days the plane remains there.

LA2JE/P hopes to be active from Hopen Is., Svalbard in 1958 and 1959.

W4TTM, on returning to the West Indies in October, may operate from some of the VP2 Islands.

SV0WB hopes to be on 14, 21 and 28 phone and c.w. the latter part of August.

Further activity is planned from Navassa in Sept. or early October by HI7LS.

ZD7SA is now active from 7 to 28 Mc.

A further DXpedition is planned to Trindade Is. (PY0) late October or early November, depending when the Brazilian Navy has a ship going there. PY1CK, PY2CK, PY1HQ and PY7AN are the operators and will be using c.w., a.m. and s.s.b. for a week or 10 days signing PY0NA and PY0NB.

Amateur Radio is now prohibited in Pakistan and Ceylon for an indefinite period. Tnx Don.

For the V.h.f. DXers, the m.u.f. is going to bring similar conditions commencing September to those existing last year and early this year. The m.u.f. in Sept. for Lat. 20° S will be 47 Mc. October 5th. Japan is 50 Mc. and Phillipines 52 Mc., and November, Central Japan and Lat. 20° S, it reaches 47 Mc. which are similar conditions to when the breakthroughs commenced last season.

ACTIVITIES

General band conditions have not produced many reports this month. Cold shacks would not be any incentive for watching flat bands.

VK2AYY/LH was worked on 3.5 Mc. by quite a few of the gang who put their gear up there. He also worked W4VNE and W8JIN. 2AGH: ZK1AD* 2AMB* W4VNE.

7 Mc.: 2AGH: VK2AYY/LH*, K5KJX*, HC4IM. 2AMB HC4IM, TI8TDM, DU7SV, UA0GF. 2QL: UA0GF*, 4X4GF, HC4IM. BERS196: OQ5RU, PY8JD (2100z), JA1YN, JA3RK, JA1BXS, VK0TC, 4X4BK and 100 Europeans.

14 Mc. c.w.: 9TC: W*, KA*, VS6*, LA*, UO5*, OZ*, HB*, UA*, UB*, HA*, ON*, SM*, DL*, UL*, XZ*, VP5*, VE*, GM*, UC*, HK*, XE*, JT*, OY7*. 8KT: UA0*, LU*, W*, JA*, OH*, F*, UL*, ZS*, VE*. 2AGH: VU2AJ*, FF8AC*, OK1KJS*, YV5AB*, VK3AYY/LH*, CE3AG*, VP8CY*, UA6AW*, UC2CB*, 8V0WP*, CN8GU*, [redacted]W*, VP2VB*, VE3PS*, FB8ZZ*. 2AMB PY1HQ*, VP5BL*, YO3FY*, UB5KCE*, CT1AI*, VE3PD*, YV0AB*, KS6AD*, PY2CK*, PY2EJ*, VP2VB*, CN8DJ*, VP5Y*, VK2AYY/LH*, KG1ER*, UQ2AN, PZ1AM, PZ1AR, 8V0WP, VO1DX, HS1C, FP8AB, VP7NM, PY8YP, JT1AA, KM6AX, ZD1FG, KZ5IF, VP8GL, UQ2AB, FF8AC 2OW UL7HB*, UA9KCC*, XZ2TH*, BV1US*, XW8AI*, UH8KAA*, HC1HL*, HL9KEF, HL3KAA, VQ8AT, ZE7JY, VK2FH, VS9MA, YS1O, HC4IM. 2QL YV0AB*, UA1KAE*, FB8XX*, VP2VB* HC4IM, VS9MA. 3KB ZD1FG*, VP2VB*, YV0AB* 4DO FF8AJ*, VK2AYY/LH*, CT1CB* 7LZ YV0AB*, VP8CY*, LU0AC*, KS6AG*, UA0KZA*, HS1C*, KM6BL*, HC1HL*, SM1BVQ*, VP2VB* BERS196: BV1US, FA8RJ, FB8ZZ, HS1C, KS6AD, KS6AG, KB6BJ, KM6AX, KX6BT, LU1AA, VK2AYY/LH, VP5BL, VP8Y, VS9MA, VS6AE, VS1FJ, XE1YF, VQ8AJC, YV5GY, VK9RR, ZK1AK. WIA-L2022 CN8EV, CN8GU, CT2AI, DU7SV, HS1C, JZ0HA, KB6BJ, KM6AK, KS8AD, KW6CQ, KZ5IF, KZ5BB, KZ5IF, KX6BT, 8V0WP, UQ2AS, UC2CB, VS9MA, VQ8GW, VQ8CF, XW8AI, XE0NND, XZ2TH, YV4AU, YV5HL, YJ1DL, ZK1AK, ZK2AD.

14 Mc. Phone: 8KT VE*, W*, G*, GI*, 9TC: VS2*, JA*, W*, YV*, FK*, KP*, DU*, XW*, KR* 2AGH VP2VB* 2AMB HP3FL*, YV5BQ*, KR6LP* 3AOM CO2MG*, CT1DU*, DL3IR*, EA3CF*, EA3JE*, FU8AF*, G*, KB6BH*, TG9AL*, TI2LA*, XE1FT*, XE2KW* 4DO: W*, VE*, KL7*, VK9* 7LZ PI1J* BERS195, KA0IJ, VR2BJ. WIA-L2022: CE2CO, CN2BK, EA8CK, FK8AS, HL9KS, KM6BL, VK0TC, XZ2KN, 4X4HA. Ian Thomas W1, W2, W3, W4, W5, W6, W7, W8. VK6BS, VR2BJ, VR3DA, VK0TC, VE7, VK0KT, FK8AS.

21 Mc. C.w.: 8KT JA*, W*, OH*, UA*, 8M*, VU*, UL*, BV*. 2QL: KW6CB*, VK2AYY/LH* 4DO KG6AFO* 7LZ EA3KT*. WIA-L2022: CN8FM, KZ5BB. KP6AL.

21 Mc. Phone: WIA-L2022: HI6GA, KM6BK, VE3VQL/SU, VK0KT, VP1EE, VP9AK.

28 Mc.: 4XJ: OQ5RU*, ZS4PB*, W*, KH6*, ZL*. WIA-L2022: W, KH6, FK8AS.

QSL SITUATION

July produced QSLs for 2AGH from CT3AN, LZ1KBZ, CT3AI, FB8XX, FF8AJ, LA8LF, UB5UW, UA0KKD, ZP5HK KC4AF, KR6AD, VK6IJ, LU3D, LA9BE, UC2CB. 2AMB 3W8AA, UB5MF, LU8DJX, LU8GM, CE4AD, CE3DY, CE3CO, SP7HX, FB8YY, FB8CD, VS9AC, LZ1WD, XE1RM, ZE7JY, YV5ABO 2OW UA9KUA UA0KJV, HA5DH HA5BO, HA8WZ, XW8AI 3QL: UO5AA, FF8AJ, UA0OM, FY7YF, ET3US, KP6AL, KB6BJ, ZP5CF, FB8BS, FB8YY 7LZ KC4AF BERS195 FA3LX, FN8AD (1955), KB6BJ, KW6CQ, LU7GDM, OQ5IE, VK1DY (1954), VP7NB, 3A3BG. Some interesting information from SM3CZL who sez the following rarer Russian prefixes are reported to QSL 100 per cent. UC2KAB, AA; UD6DD, AL, BI, KAB, UF6FB, AM, KPA; UH8KAA; UI8KAA, KAE; UJ8AF, KAA; UL7KAA, FA, OM; UM8KAA; UN1AE, AB, UO5AA, PK; UP2KCB, KBG, AS, AT; UQ2AN, AS; UR2KAA, AN, AO, BU, AK, BV. Sven has now received QSLs from VKs 3AD, 7BI, 2ACN, 7BM, 4NC, 6KW, 5XN, 7LZ, 3ZL.

QTH OF POSSIBLE INTEREST

VP2GL—Box 44, St. Georges, Granada (2AMB).
HL9KEP—Box 39, Pyongyang (2OW)
HC4IM—Box 4881, Manta, Ecuador.
VS9MA—R.A.F. Gan, B.F.P.O. 180, Maldives.
KW6CB—Box 73, Wake Is.
HS1C—Box 1038, Bangkok (7LZ).
KM6BL—Navy 3080 F.P.O., San Francisco (7LZ).
YV0AB and VP2VB—Via KV4AA.
KW6CQ—Box 68, Wake Is. (BERS196).
VE3VQL/SU—56 Canadian Signal Sqdn., U.N. H.P. B.P.O., Beirut (WIA-L2022).

I had hoped to give a list of stations operating s.s.b., but space has probably run out, so I will give it next month.

And now we wind up another month and my thanks to my DX friends W4KVX, W6YY, and SM3CZL for their help, and 3KG for his info on the VK0 boys, 2AGH who is still adding new ones, 2AMB has heard but not raised his elusive zone 35. 2OW waiting on confirmations for two zones and not 23, 3KB who skip took out before I copied all his info, 3AOM now a very proud grandfather with the arrival of a junior op. for VR3A, 4DO who hopes for an improvement in DX to see how his new band of 21 Mc. will shape, 7LZ who wishes he could keep himself right up to the minute on whats new, 4XJ, hope your painting is successfully completed Les. To the s.w.l. boys BERS196, who I should say very happy to get his FN8AD QSL after so long, WIA-L2022 who chasing his H.A.S. and finally Ian Thomas, who seems able to sort out the DX on his small rx. Would like to hear it on a lively dog pile Ian. Don't forget that zero hour is the 28th of each month, fellas. 73.

S W L

Ian J. Hunt, WIA-L3007
211 St. George Road,
Northcote, N.16, Vic.

First for this issue comes a letter from Don Grantley, of Holbrook, N.S.W. He states that he has been flat out preparing for the R.D. Contest which, of course, will be past by the time you read these notes. A complete overhaul of all equipment has been his aim. Lots of rain has kept Don indoors for the past month and as a result he has heard over 100 stations to increase his countries tally to 140. He also tells me that Rod Bent, of Albury, whose father manages the station where Don is employed, has constructed a small transistor rx to cover the 40, 80 and 20 mx Ham bands.

Eric Trebilcock has forwarded details of a Japanese s.w.l. who would like to correspond with s.w.l's. in VK. He is Keiji Shigeta, 180 Noshio Kiyose, Kitatama, Tokyo, Japan. He is interested in exchanging Amateur radio periodicals, photographs and call books. So if you wish, go ahead and drop him a line. Thanks very much for your note, Eric.

John Wallace, who is located in Canterbury, Melb., has also sent me a letter stating that he is interested in the S.w.l. Group. Welcome to you John, and hope to see you come along to our meetings. They are held on the last Tuesday of each month at 8 p.m. at the W.I.A. Rooms, 191 Queen St., Melbourne.

Dave Jenkin, of Orbost, is again back on the farm chasing cows and also preparing for the R.D. Contest. He has been very busy modifying his new AR7 rx in accordance with details recently published in "A.R." He was very lucky to find his great pal, Sticker (a cattle dog) which strayed whilst Dave was down in the big city. Dave has to rise very early each morning to milk the cows, but always seems to find time to drop me a line. How about some of you others doing likewise?

Two letters have been received this month from the beautiful city of Geelong, these from Horace Barling and Bill 3BU. Horace is attempting to make the best of things, but the cold weather does not suit him. He was very happy to receive a visit just recently from 3BU, 3IC and 3ALG, of the Geelong Radio Club, and tells me that Fred 3ALG has now loaned him a rx which knocks spots off the Zenith which was in use before. I hope those chaps are gratified, having been of assistance to an s.w.l. who was definitely a person in need. Good luck to you fellows and thanks on behalf of Horace.

Bill 3BU, in his letter, has told me of some of the things he has done to improve his AMR300 rx. He has 6BA6s as r.f stages and a 6AE8 as a mixer, but thinks that an ECH35 would also work well in this position. He took the loading resistor off the last i.f. stage and fitted a tone control and noise limiter. He found the xtal filter was too sharp and, this could qualify for the Hints and Kinks section, shorted the xtal pins with fuse wire, this proving a very good move and giving a little extra gain on DX.

That then ends the letters for this month, and thanks to all who wrote to me.

S.W.L. OF THE MONTH

This month we meet Maurice Cox, WIA-L3055. He is 32 years of age, married with a son and daughter. He is a South Australian by birth and spent his early days in Woodville, a suburb of Adelaide. When young, he spent a great deal of time playing around with a dual wave rx at home, but gave it away and joined the R.A.N. at 17½ years of age as a sick berth attendant. He became interested again in radio in 1950 and has since used the Marconi R1155, AR8 and BC342N type rx's. He is very keen on playing around with antennae and looks like becoming a specialist on this subject.

He has been a member of the VK3 Group for 18 months and is looking forward to getting his A.O.C.P. He is at present Assistant Secretary of the VK3 Group. Only recently has he become interested in collecting QSL cards and already has a score of 58 to his credit.

Once a keen cricketer and model railway enthusiast, he has given these away for s.w.l. work. He not only listens to Amateur Stations but to the s.w. broadcast stations as well and has been made an official reporter for Radio Japan and the Canadian Broadcasting Corporation. Maurice works as a clerk at the Repatriation Dept. and lives at the Olympic Village, West Heidelberg, where the Russian Olympic team were billeted. He has not, however, yet evidenced the endurance of Vladimir Kuts, but hopes to emulate a similar feat during the R.D. Contest.

Maurice has a very comprehensive log and indexing system, but is not too happy about the number of VK Amateurs who don't QSL even when return postage is enclosed. His present gear consists of a BC342N rx, a 6AE8 mixer-osc. converter covering from 16.2 to 32 Mc., whilst the antenna is a folded dipole cut for 20 mx, made from 300 ohm ribbon. He is now in the process of putting up a 66 ft. windom antenna and building an antenna coupler.

VK3 GROUP JULY MEETING

This meeting took the form of a natter night with 13 members present despite the bad weather. A newcomer was Arthur Brook, of Essendon, to whom we extend a hearty welcome to the Group. After general business was dispensed with, Ian Hunt told members a little about the I.T.U. Appeal and then everybody had a general earbash amongst themselves. The meeting ended with a session from 3WI with George 3WJ at the controls, many of the members being given the chance to participate in a QSO.

CARD OF THE MONTH CONTEST

We have not yet received any details of similar contests run in the other Divisions, but would be very pleased to hear of same.

The card of the month for August in the VK3 Division resulted in a draw between Ian Hunt, with a card from XZ2TH, and John McEwen, with a card from FB8BC. A total of 10 cards were entered in this month's contest.

As mentioned in last month's notes, the VK3 Group President and Secretary sat for the July A.O.C.P. exam. You will be pleased no doubt to hear that both passed to qualify for the Limited ticket. Our congratulations are also passed to another VK3 member, Bert Stebbing, who passed at the examination set at Deniliquin whilst up there, and as well to Bob Wallace who had not quite got around to actually joining the Group but was just on the verge when he was posted in his Army job to Bandiana, up near the border. So it looks as if there will soon be a few more chaps on the air to talk about the good times had with the S.w.l. Group. Be assured though that they are not going to stay on the v.h.f. bands, but intend to pass the morse test now and get down to the h.f's. to work some of that DX they have been hearing for so long.

Whilst talking about morse, let me drop a little hint which may be of use to you if you wish to polish up your sending and have no audio oscillator. The idea is simply to tune to a steady unmodulated carrier, in my case I use the signal from our city Fire Brigade station which is usually unmodulated, switch on the rx b.f.o. and key the resultant audio output. With my rx there are two headphone jacks in parallel and I use the phones in one and a key wired to short out the audio when it is left in the up position. To return the system to normal I have only to pull out the plug for the key and I'm in the s.w.l'ing business again. I can assure you it is a very simple and yet useful idea.

So with that my friends I must conclude these notes for yet another month. I wish you the best of good luck with your listening and hope you have a good time during the R.D. Contest.

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FIFTY MEGACYCLES

This month's 50 Mc. column is handed over to Lance 4ZAZ, Mt. Morgan. Extracts are from notes accompanying his log which summarises his DX contacts from Feb. to July '58.

"Generally I received about the same report as I gave. Quite a few of the JAs are QRP and my super local QRM, the 66kv. transformer yards and power lines, put the signals down somewhat. At times it completely paralyses the rx and nothing but an S9 plus signal is detectable or copied. I became really annoyed about the noise when it completely blotted the Yanks that Bob 4NG worked on the morning of 16th March. When it came a bit more civil, I started copying W6CNM (at Colorado Junction, I think) fine business. I was becoming even more annoyed when he had refused to answer either Bob or me by 1230, and by about 1430 when W7SPO and his W7 mates completely ignored VK for a bit of rare W6 DX, I became downright panicky. When the W6s came up again they had their feet up holding a post-mortem. Luckily for me and some other 6 mx VKs who are a bit light on for Ws, one of them decided to look around the band.

"The lesson I learned from this is to look around the band for the weak ones when ANY DX is on. Either the W0 or W7SPO was running only 20 watts, and he was putting in a signal peaking to S8 at times, and good copy for quite a long time. It is pounds to peanuts that if he had looked past the S9 plus W6s he would have had for himself one or two VKs.

"Another point that arises from the season's doings is the matter of local natter sessions. How many DX openings have been found by getting on to a local natter session going on someplace. But how many VKs take a tune over the band between overs when we are swopping lies. A lot of the old hands do, but I know from personal experience that there are a lot who don't. I think that during the quieter periods in this hemisphere it is important that we use the band as much as possible and listen between overs. Who knows, there may be an SM or a ZS or LU or anyone sitting on the fence waiting to get in on the act. If the band is not used and monitored we will miss the rare ones for sure.

"Many JAs have worked 15 countries and only need Europe for W.A.C. They have numbers and geographics on their side but most of their success is due to the fact that at any given time there is a JA somewhere calling CQ and monitoring the band.

"Even in the late evening periods DX is possible. We have worked KH6 here when it has been 2 a.m. over there and the JAs work DU at around midnight our time. From our point of view, the only condition which behaves to a prescribed pattern is the JA F2 and TE path. KH6 has popped up at odd times of the evening and odd times in the 27-day cycle. The same with the Ws. From the times the W commercials started to come through above 42 Mc., we formed the conclusion that the period from 0700 to about 1100 was the time most likely to give us results. This did, in fact, prove to be correct. Bob worked his first W6 at about 1020, but the band stayed open till about 1530 with not many breaks in between. Maybe the sporadic E over there extended the F2 to give us the W0 and W7 signals. The W6s came back at 1500 for another F2 peak after the sporadic E petered out over there. Also of interest during this period, odd JAs were copied at times during the afternoon calling LU. Confirmed next day by numerous happy JAs with news of LU and CE and KH6 contacts on the same lot of F2. The KH6 contacts were probably made on the same sporadic E cloud the Ws had. Three countries were worked that day, W, KH6 in the early evening, and JA after the KH6 opening.

"With the advent of VK8s on the band, it was proved that at the same time as we were getting the fluttery signals with typical TE characteristics, JAs were giving the VK9s S9 F2 reports. This was also the case when they were heard working DU, KX6 and KG6. It would seem then that the TE type of signal is the tailend of F2 to some place else. In the early part of the season, and the latter stages, the TE type of signal was the only one heard and there was no evidence of the solid F2 signals. However, I have almost formed the conclusion that during that period the solid F2 path does exist. Maybe it is from north to south poles or someplace else, but I think that the type of signal we have been calling TE is only a side effect of an f.b. drop of F2. To further reinforce this assumption, when TE sigs are on to JA, the 'commercials' around 40 Mc. are solid F2. To add a little more confusion, the TE sigs from JA seem to peak with the beam a little further west than the solid F2. This may not be accurate, as the solid boys are hard to peak, anything up to 20 or so degrees doesn't make much difference. I do not know what the generally accepted theory on TE is. The only data I have seen is by courtesy of Bob 4NB, which indicates that TE is a double hop signal without a ground hop in the intermediate zone, and the critical angle is about 7 degrees (radiation angle, that is). Perhaps we will be able to learn what the backroom boys make of it some time in the future, and read about it in 'A.R.'

"The F2 path to JA sometimes becomes very selective and radiation angles become critical. Many times during the season there has been up to a 30-minute time lag between Bob and myself. Sometimes him first, at others vice-versa. I used to panic a bit for a while and think the thing had blown up, but soon learned that if I stuck around for a while we would come good. His experience was similar. I don't think that it is the 24 miles that makes the difference, more likely the 700 or 800 ft. of elevation and the fact that a lot of my low angle lobe gets shot up as high angle stuff from my beaut. hills.

"The gear used during the period was as follows:

Tx—60w to an 807, pi output and antenna couplers to 72 ohm twin.
Ant. (till April sometime) 4 el. 0.2 spaced Yagi folded dipole match. After April—4 el. wide-spaced with 300 ohm folded dipole and 300 ohm twin lead. Having a fairly long run, this cut down the feeder losses and we had a better match.
Mod.—EL34, AB2, speech clipper and xtal mike, power tranny mod. trans., changed in May to a correct mod. trans., which improved the modulation very much.
Rx—Xtal converter 6BX6 r.f., 6J6 osc./mult., 6CB6 mix., 7.5 Mc. to band E on a modified AR8, plus rx by kind courtesy of 4NG to sharpen the thing up if needed.
June—Added 6BQ7 r.f. cascode, use optional ahead of main conv. Improved signal/noise and gain a little. Main purpose was to broaden the pass-band of the converter. Now has pretty flat response from 44 to 52.5 Mc. Also brings the power leaks right into the shack, instead of to the back door, when they are on. This has been a great comfort to me when listening for rare DX, hi!
Also in June.—New tx, p.p. 807s (must have known we were going to get 150w.). Exciter can deliver 10w. to the antenna, drive the final, or supply 48 Mc. to a two mx tripler coming up one day. Xtal 50.2 Mc. or v.f.o.

"DX worked during the period. Five countries confirmed, JA, KH6, W6, ZL and VK9. JAs—251 different stations, AJD and a one-day AJD. WAJA—36 confirmed, I think QSLs to come will bring that up in the 40 mark. I know there is one JA5 and one JA9 prefecture that no one has worked yet, Kagashima and Ichikawa respectively.

"Regrets during the period. Missing the KX6 and not being around when Bob had the LUs on the band.

"Hopes for the future. Plenty of DX for the VK gang, and retention of the 6 mx band. My main purpose in submitting my log is to help to back up our claim that Channel 1 t.v. would be a shambles for a considerable period of the year. As I see it, during the sporadic E season, t.v. sets on fringe areas would probably find it hard to decide if they were going to give to their owners their own local programme, the one across the other side of the country, or JA6JY and the gang. Furthermore, what would 5 megs. of t.v. at 100kw. or even 1kw. do to the Ham bands of the rest of the world when we can get S9 plus from a watt or so and a piece of wet string for an antenna?" VK4ZAZ.

JA signals are on the way again. VK4 and VK9 have set the ball rolling. With 4ZAZ hearing 5MK early in July and VK9/VK4 in contact on August 3, the 27-day cycle appears due around August 30. Despite one widespread aurora during the month, sighted as far north as Queensland, no contacts apart from local were made in the various Divisions though a keen watch was kept. Several times the VK3 gang were alerted during the month when weak signals appeared on the band, but nothing came of them. Bill 4WD enters a strong plea re DX QSLs. Quite a few VK stations have not QSLed JA stations as yet and the JA boys are worried about it. If they are worth working, then they are worth a QSL card or note of acknowledgment if you have no card on hand! Poor show boys!

Logs received and passed on to F.E. came from 4NG, 4ZAZ and 8XK, all very fine efforts. The response to the appeal for logs has been gratifying, but more are needed, so make this a 100 per cent. effort.

You have read of the experiences of 4ZAZ. Lance also adds, "I hope to see some of the other active VKs let us know what they have heard during the past season, as conditions vary over the VK landscape, and a comparison of findings between North, Central and South VK4s, VK2s, VK3s, VK5s, VK6s and VK7s, not forgetting VK9, would be a great help in determining the extent of the F2 conditions which operate around this country."

NEW SOUTH WALES

Hi chaps, well we all know how cold the nights have been lately and this probably accounts for some easing off of activity, however our meetings, events and contests have been well patronised and by reports, quite a deal of new equipment is under construction.

July Meeting.—Barry 2ZAG, well known to the Institute for his capable lectures, treated us to an interesting discussion on power supply design, filtering, protection, etc., and brought to our attention the versatility and economy of the dry rectifiers now available. Barry concluded with an introduction to the design of transistorised portable power supplies.

The good roll up of some 40 odd members and visitors, went on their way to the good of 15 feed-through bypasses, generously donated by Barry's place of toil.

Midwinter Contest.—On 13th and 14th July, the Group held this annual contest and this year the Saturday evening was in the form of a message handling competition, whilst on the Sunday a scramble was held.

Over 30 stations were active and results are just to hand. 1st 2MZ 123 pts., 2ZCF 115, 2ZCH 109, 2AWZ 102, 2ZDG 88, 2ZCW 70, 2PM 64, 2RX 56, 2ZBQ 34, 2ZBX 30, 2ZJD 29, 2ON 23, 2ZCP 15. It is unfotunate that conditions were poor and country participation was difficult.

Country News.—From the north we hear that Stewart 2ZDF has a new 144 rig going with a 3/10 in the final and a 12AX7 modulator. 2ZDF and 2ZDL are active (but it is disappointing that conditions to Sydney are so poor). Lindsay 2ON, of Gosford, is being worked in Sydney at S8 and is very interested in 2 mx gear. From the west we believe that Neville 2DR, out in the frozen wastes of Blaynay, is hibernating beside the fire with low power 7 meg. gear. How about it, Nev.? Hugo 2WH at Forbes has his 32 el. beam up and 2BT, Eugowra, has a cascode under construction. Up in the Blue Mountains it is told that Don 2ART will soon be going with a 522 and cascode. Also three converters have been finished by associates and we hope to hear these chaps some day.

Wal 2MZ has been busy on a 6BQ7 converter as well as converting a Command rx and has given us some details of the "Do" to be held at Catalina Park on 26th October. The day will include all the regular fox hunts, competitions, etc., and a special bus tour is arranged for the ladies. V.h.f. boys will recall the last effort and are hoped to turn out in force again.

144 Mc. Around Sydney.—2ZCW is now one of the big guns, having erected a phased array. 2ZCH is making his presence felt with an 829. 2ZCF is very pleased with his 6HE7 discriminator and is, of all things, building converters for the d.c. bands. 2PF has a good sig. with his 6 el. beam and 2AZN will be leaving soon for a stay in London. 2ZAQ is building a new shack. 2RX is taking holidays. 2ZBX is now mobile, and 2ZDG is almost mobile. A welcome back is extended to Charlie 2AZK, of Hurstville. 2GE has also been heard on two. Congrats. to John Lek, an active v.h.f. member who has now passed the A.O.C.P.

Fox Hunt, 23/7/58. 2HL with 2ABZ were the fox and 1st place was taken by Dick 2ZCF and crew, followed by 2PM/2ER/2ZAQ, followed by 2AWI, 2ZBB, 2OA, 2ZAV. Horrie put on a wonderful hot soup supper and we were all pleased to meet Dave 2ZAQ.

Dates to Note.—3/8/58, no meeting, but members and visitors should gather at the gates of Channel 7, Gore Hill, for a conducted inspection. 27/8/58, night hidden tx hunt. 14/9/58, special new day event.—2AWZ.

VICTORIA

V.h.f. Meeting.—17 members were present at the July v.h.f. meeting and the lively discussion resulting didn't finish till past 2300 hrs. Field day gear brought along included Bob

3ZAN's motor generator set which uses a surplus d.c. motor as a generator and can give both 300v. d.c. and 230v. a.c.; John 3ZAJ's 1 mx xtal locked converter using a new coaxial line 6Q4 r.f. stage; Ray 3ZAE's 1 and 2 mx tx's, and finally, Norm 3ZBU's mobile 2 mx tx with a QQE03/12 final.

Considerable discussion was needed before the following set of rules for the next series of v.h.f. field days was adopted, they are:—

1. Five Field Days to be held for the season, one in November, December, January, March and April, the January Field Day to correspond with the National Field Day.
2. The operator to operate as long as he chooses during the Field Day, but the log submitted to contain only five consecutive hours of operation.
3. Each operator to use a different location each Field Day, at least five miles from one previously used.
4. Scoring: one point per mile, the distance to be agreed upon by both stations with a maximum of 250 points per contact. No band multipliers.
5. Logs to be submitted on standard log sheet with addition of mileages within a fortnight of the contest.

6 Metres.—No DX signals have been heard in VK3 for the past few months and activity is limited to local QSOs. A 6mx scramble has been arranged for the fourth Sunday of each month from 2000 to 2030 hrs. The first scramble which took place in July was won by Jock 3ZDG, who worked all of the stations operating (13), equal second were David 3ZAT and Ian 3ZBP, with 12 contacts each. So that no logs need be submitted, a control station (the winner of the previous scramble) calls each competing station, takes their score and then announces the winner. The next scramble will be held on Sunday, 28th September.

Ron 3AHJ will be passing through Sydney on his way to Brisbane and will be looking for contacts on 6 mx. Ron has a walkie-talkie operating on 50.32 Mc. which uses either batteries or a.c. power supply, and will be in Sydney on the evening of September 26 and the morning of the 27th, and in Brisbane on the evening of September 28.

2 Metres.—Allan 3AEL, who is at present in Canada, crossed the border some time back and visited West Hartford, Connecticut, the headquarters of the A.R.R.L. Allan made the acquaintance of George Grammar, Ed. Tilton, and the rest of the gang and sends along his regards to the v.h.f. gang in VK3.

Apparently the lull in 2 mx activity during the winter season has been used to advantage by Jack 3ZEF and his second op, both have passed the exams for their full call signs and are awaiting their new calls. Max 3ZCW, who was operating portable in Melbourne during August, tells us that he and Hughie 3BC heard 6WG on 2 mx during one of the 6 mx breakthroughs to VK6. Max, whose QTH is in Ouyen, unfortunately was not able to make the QSO both ways, however, it does look like the 2 mx band could bear watching during 6 mx openings.

1 Metre.—Les 3ZCN now regularly relays the 3WI broadcast on 288.16 Mc. from his QTH in Noble Park and after the broadcast calls for reports on either 1 or 6 mx. Les, who is running 80w. to a QQE06/40 final, has already been heard by George 3ZCG in Moe. Quite a few Melbourne stations now have converters, stabilised tx's or both for 1 mx and would be anxious for scheds with country stations.

½ Metre.—Ivan 3ZDI and Les 3ZCN have been conducting experiments on this band and have exchanged signals. Les is using a 4X150A lighthouse tube r.f. stage feeding into a xtal mixer.—3ZAI.

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or the Class Manager on either of the above evenings.

QUEENSLAND

50 Mc.—Still plenty of VK4 activity, with a few new calls appearing on the band. 4KS, 4ZAX, 4ZBL and more to come. Quite a few are going high powered in the near future. Allan 4ZBF is re-building bigger, brighter, better is his hope. A V.h.f. Group has been formed here and meets at the QTH of 4JO on the third Friday of the month. 4HD and 4ZAT were heard in Brisbane at good strength but 4ZAO has not been heard on the band lately. 4NG and 4ZAZ are back on the job working JA for the last few weeks (July/Aug.), mostly at night; July 28, weak carriers; July 29, JA7, JA8, 2100 to 2330, fair opening with flutter; July 31, JA around 2100, quite a bit of flutter; August 1, carriers to S6 with flutter. August 2, weak signals around 2020 also with flutter.

JAs heard in Brisbane by Whisky Delta: July 19, 1815 to 1830, S6; July 21, 1750-1800, S4 to S7; July 23, S3 to S6. On each occasion signals marked by QSB and flutter.—4WD.

SOUTH AUSTRALIA

DX, what does it sound like? 6 mx as flat as a board. Well, just wait till those JAs come through, the QRM will be terrific. There must be a terrible lot of re-building going on, for signals are very scarce on 50 Mc. these nights. Only one new call heard on the band, Brian 5ZBI by name, located at Nailsworth. Welcome old man. I hope your trips to the country do not coincide with a JA break-through. Brian's gear is an 807 to a folded dipole, v.f.o. controlled. Another likely for the band is George 5ZGA, heard cross-band with Lance 5ZBC the other night 6 to 1 mx. George has his converter ticking over nicely now and should soon have a 6 mx array on top of his 40 ft. tower.

Other stalwarts still on 6 mx are Graham 5ZAP, who is trying to alter his change-over to one switch. You always hear Brian's multipliers first. Ray 5ZBM gradually stoking up a stronger signal. Curl 5ZBL trying out all his 815s to stop them going soft. Brian 5ZBX getting the ultimate in modulation and that ever-sharp George 5GB reading and always listening for that weak signal from the north and north east. Others heard regularly of a Saturday evening are Reg 5QR and Bob 5RT, working cross-band 2 to 6.

Les 5AX couldn't get to dinner the other Sunday, one after the other, all the city boys poked a signal into Gawler and Les, whose converter decided to do the right thing, was loathe to break away from the contacts. It is told that Les eventually had his dinner with the dog. Incidentally, Les was running 150w. to an 829b, but has reduced this to a bare 80w. I wonder how long it would have lasted Les?

Ross 5MK has his tower up to 60 ft. now and it should withstand any wind, for each leg is anchored to reinforced concrete 6 ft. into the ground. Ron's new beam is tuned up and he has a guaranteed standing wave ratio of 1 : 1.120202 or thereabouts. A nice set up Ron. I wouldn't mind a 5 el. yagi like it. Nearly forgot to mention Graham's 5ZAP 6 mx mobile converter, apparently working OK and intends to use a 6AQ5 in the final of his mobile tx.

144 Mc.—I hope any visiting mobile from Interstate will forgive us. It's not the lack of tx's, it's just the lack of signals. Ring LF 6736 and I can guarantee a signal within 5 minutes.

288 Mc.—Somewhat similar to 2 mx with an occasional mod. osc. session, the most consistent signals being Gary 5ZGH, George 5ZGA and Lance 5ZBC, and occasionally Graham 6ZBT.

The birds have whispered to me that within 3 months there will be a pattern for t.v. testing on 1 mx complete with f.m. phone, working in the band from 290 Mc. up. Here's your chance to build that 288 Mc. converter by 3ZAI in the August issue of "A.R.", feed it into your t.v. rx and be the first to see the pattern. Controlled signals will eventually be essential on 288 Mc. with normal transmissions on the lower 2 megs of the band.—5ZAW.

PAPUA-NEW GUINEA

50 Mc.—After a couple of years of continuous 1900 EAST skeds, Russ 9XK, Port Moresby, worked through to 4NG, 4ZAZ and 4HD on August 3. There was no sign of the Brisbane gang 60 miles to the south of 4HD. Russ heard weak JA sigs of varying strengths on July 2, 13, 24 and 29, and worked JA on July 4 and 23, and Aug. 4, with signals varying from 5/8 to 4/5 each way. Sigs were marked by flutter most of the time.

PREDICTION CHART, SEPT, '58

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Applications are invited for the undermentioned vacancies in the 1959 Expeditions to Mawson, Davis, Wilkes and Macquarie Island.

PERIOD OF EMPLOYMENT

Two to four months preparatory work in Melbourne followed by approximately twelve months at the Station. Tentative sailing dates: Macquarie Island—early December, 1958, Mawson, Davis and Wilkes —late December, 1958. Whilst absent from Australia, kitting and maintenance are provided free by the Commonwealth, and there is an allowance of 37½% of salary up to a maximum of £575 per annum; in addition to which a district allowance of £275 per annum for married men, and £175 per annum for single men is paid. Recreation leave accrues at rate of five weeks per annum. Subject to the provisions of the Income Tax Assessment Act, Zone Allowance deduction of £180 may be allowable. Salaries commence within the appropriate range according to qualifications and experience. Employment will be in a temporary capacity under the Public Service Act 1922-1958.

★ PHYSICIST

Positions: Macquarie Island (1), Mawson (1), Wilkes (1).

Duties: To carry out research on Ionospheric, Cosmic Ray, and Auroral Phenomena involving operation and maintenance of radar, pulse counting, photo electric and other electronic equipment, photographic and spectrographic equipment.

Qualifications: University degree, preferably with honours, with Physics as a major subject (or equivalent). Sound knowledge of, and experience in, electronics.

Salary per annum: £1,416-£1,686.

★ TECHNICAL OFFICER

Positions: Macquarie Island (1), Mawson (2), Wilkes (1).

Duties: Responsible for functioning of Ionospheric, meteor radar, and/or other electronic equipment, participate in investigation of geophysical phenomena.

Qualifications: Sound training or laboratory and/or field experience in electronics, including pulse techniques, essential.

Salary per annum: £1,181-£1,421.

Classification as Technical Officer Grade I., £1,181 £1,331, or Technical Officer Grade II., £1,331-£1,421, and commencing salary within those grades will be determined in accordance with experience and qualifications. Results or any academic studies should therefore be stated.

★ SUPERVISOR (RADIO)

Positions. Mawson (1), Davis (1), Wilkes (1), Macquarie Is. (1).

Duties: To service and maintain radio, radiosonde and rawin equipment and act as Senior Radio Telegraphist.

Qualifications Applicants should state any appropriate licence or technical diploma held by them. A thorough knowledge of theoretical and practical electronics is essential, plus a First Class Commercial Operator's Certificate of Proficiency or equivalent service experience.

Salary per annum: £1,085-£1,115.

★ RADIO OFFICER

Positions. Mawson (2), Davis (1), Wilkes (2), Macquarie Is. (2).

Applicants should possess Commercial Operator's Certificate of Proficiency or equivalent service experience, together with wide experience in operation and maintenance of ground installations.

Salary per annum: £945-£1,065.

Applicants must be in robust health and have experience in outdoor life such as ski-ing, mountaineering, bushwalking, etc. The successful applicants for the Physicists and Technical Officers positions will be required to commence duty as soon as possible. Applications, which must be accompanied by a recent photograph and the names of at least two referees, should reach—

The Director, Antarctic Division, Department of External Affairs, 187 Collins Street, Melbourne, by 16th Sept. '58.

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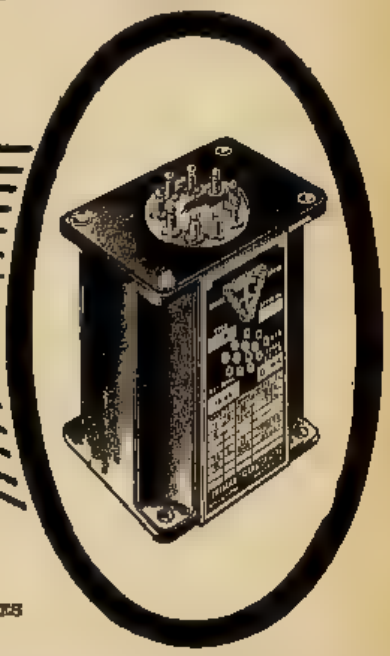

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NOTES

Administrative Secretary: Mrs. May, C.O.R. House, 191 Queen St., Melbourne.

Meeting Night: First Wednesday of each month at the Radio School, Royal Melbourne Technical College.

Divisional Sub-Editor: V. M. Jones, VK3YE, 7 New St., Surrey Hills, E.10.

QSL Bureau: Inwards and Outwards—W.I.A., 191 Queen St., Melbourne, C.1, Vic.

Zone Correspondents: **Western:** W. J. Kinsella, VK3AKW, Magdala, Lubeck; **South Western:** W. Wines, 48 Cranley St., Warrnambool, and W. Zimmer, VK3AWZ, 70 Skene St., Newtown; **Far North Western:** M. Folie, VK3GZ, 101 Lemon Ave., Mildura; **Midlands** R. Jonasson, VK3ND, Farnsworth St., Castlemaine; **North Eastern:** L. Ellason, VK3ALE, 73 Orr St., Shepparton; **Eastern:** J. Spark, VK3AJK, 20 Marshall Ave., Moe.

QUEENSLAND

President: John Pickles, VK4FP.

Secretary: W. J. Rafter, VK4PR, Box 638J, G.P.O., Brisbane.

Meeting Night: Fourth Friday in each month at the State Service Union Rooms, Elizabeth Street, Brisbane.

Divisional Sub-Editor: A. Simpson, VK4ZAE, Cr Baden Powell and White Sts., Everton Park.

QSL Bureau: Jack Files, VK4JF, Vanda St., Burnnda.

Zone Correspondents: **Maryborough:** R. J. Glasscp, VK4BG, 80 North St., Maryborough; **Townsville:** R. K. Wilson, VK4RW, Hogan St., Stuart, Townsville.

SOUTH AUSTRALIA

President: B. W. Austin, VK5CA.

Secretary: J. C. Haseldine, VK5JC, Box 1234K, G.P.O., Adelaide. Telephone: M 7851.

Meeting Night: Second Tuesday of each month at 17 Waymouth St., Adelaide.

Divisional Sub-Editor: E. C. Daw, VK5EF, P.O. Box 44, Gawler, S.A.

QSL Bureau: G. Luxton, VK5RX, 27 Belair Rd., West Mitcham, S.A. (Inwards & Outwards).

WESTERN AUSTRALIA

President: L. Roeger, VK6HR.

Secretary: J. R. Elms, VK6HE, Box N1003, G.P.O., Perth, W.A.

Meeting Night: Third Tuesday of month at Perth Tech. College Annexe, Mounts Bay Rd.

Divisional Sub-Editor: J. R. Elms, VK6HE, 29 Central Road, Kalamunda.

QSL Bureau: Jim Rumble, VK6RU, Box F319, G.P.O., Perth, W.A. (Inwards and Outwards).

TASMANIA

President: P. E. L. Dunne, VK7PD.

Secretary: K. E. Millin, VK7KA, Box 371B, G.P.O., Hobart.

Meeting Night: First Wednesday of each month at W.I.A. Clubroom, 147 Liverpool St., Hobart.

Divisional Sub-Editor: W. W. Watson, VK7YY, 58 Brooker Ave., Moonah.

QSL Bureau: J. Batchler, VK7JB, 39 Willowdene Ave., Lower Sandy Bay, Hobart.

Zone Correspondent: North Western Zone—Terry Tongs.

PAPUA—NEW GUINEA

President: F. N. Nolan, VK9FN.

Secretary: G. A. Greville, WIA-L8004.

Divisional Sub-Editor: R. Clark, WIA-L8001, P.O. Box 204, Port Moresby.

QSL Bureau: D. S. Brown, VK9SB.

FEDERAL

Fed. President. G. M. Hull, VK3ZS.

Fed. Secretary: L. D. Bowie, VK3DU, Box 2611W, G.P.O., Melbourne, C.1, Vic.

Federal Councillors:
New South Wales—Bob Godsall, VK2ARG.
Victoria—Dave Wardlaw, VK3ADW.
Queensland—Arthur Walz, VK4AW.
South Australia—Rex Richards, VK5DO.
Western Australia—Ron Hugo, VK6KW.
Tasmania—Doug. Fisher, VK7AB.
Papua-New Guinea—Russ Coleston, VK9XK.

Fed. Contest Committee: Reg. Harris, VK5RR, Secretary, Box 1234K, G.P.O., Adelaide, S.A.

QSL Bureau: R. E. Jones, VK3RJ, 23 Landale Street, Box Hill, E.11, Vic.

Awards Manager: A. G. Weynton, VK3YU, 3 York Street, Bonbeach, Vic.

NEW SOUTH WALES

President: Perc. Healy, VK2APQ.

Secretary Norm Beard, VK2ALJ, Box 1734, G.P.O., Sydney.

Meeting Night: Fourth Friday of each month at Science House, Gloucester Street, Sydney.

QSL Bureau: Box 1734, G.P.O., Sydney. Frank Hine, VK2QL, Manager; assisted by Allan Smith, VK2AIR.

Zone Correspondents: **North Coast and Tablelands** Noel Hanson, VK2AHH, Ryan Ave., West Kempsey; **Hunter Branch:** R. W. Rose, VK2AQR, 17 Brooks St., West Wallsend; **Coalfields and Lakes:** H. Hawkins, VK2XL, 9 Comfort Av., Cessnock, **Western:** W. Stitt, VK2WH, "Cambijowa," Forbes, **South Coast & Southern:** E. Fisher, VK2DY, 2 Oxlade St., Warrawong; **8th. Western.** J. W. S. Edge, VK2AJO, Wallace St., Coolamon; **Tamworth:** S. Smith, VK2APS, 50 Upper St., Tamworth.

VICTORIA

President: F. G. Ball, VK3YS.

Secretary: J. R. Lancaster, VK3JL.

Although the code word SINPFEMO is intended for telephony, either code word may be used for telegraphy or telephony.

Rating	S Signal Strength	I Interference	N Noise
5	Excellent	QRM	QRN
4	Good	Nil	Nil
3	Fair	Slight	Slight
2	Poor	Moderate	Moderate
1	Barely audible	Severe	Severe
		Extreme	Extreme

Rating	F Propagation Disturbance	O Overall Readability
5	Nil	Excellent
4	Slight	Good
3	Moderate	Fair
2	Severe	Poor
1	Extreme	Unusable

Example. Signal report SINPO 585X4 would mean excellent signal strength, moderate QRM, no QRN, propagation disturbance not rated, and overall readability good.

In the case of the code word SINPFEMO, the letters S, I, N, P, and O have the same meaning as for the SINPO code, but in addition the letters F, E, and M have these additional meanings:

Rating	F Frequency of Fading	E Modulation Quality	M Modulation Depth
5	Nil	Excellent	Maximum
4	Slow	Good	Good
3	Moderate	Fair	Fair
2	Fast	Poor	Poor or nil
1	Very fast	Very poor	Continuously overmodul'ted

Example: Signal report for telephony of SINPFEMO 34254453 would mean fair signal strength, slight QRM, severe QRN, no propagation disturbance, slow fade, good quality of modulation, maximum depth of modulation, and fair overall rating or readability.

The overall rating or readability of telephony for both code words is also interpreted as follows:

Rating	Operating Condition	Quality
5	Signal quality unaffected	Commercial
4	Signal quality slightly affected	Commercial
3	Signal quality seriously affected, channel usable by experienced operators	Marginally commercial
2	Channel just usable	Not commercial
1	Channel unusable	Not commercial

T.V. EXAMINATION

The Australian Broadcasting Control Board has notified the following candidates that they were successful at the examination for the Television Operator's Certificate of Proficiency held in Sydney and Melbourne on 10th June, 1958.

Sydney: William Leonard Aubrey, James Peter Gee Cox, Ernest Casimir Crouch, Kevin Douglas Curtin, Noel Stanley Hill, William John Hollister, Alex Richard Jepson, Owen Thomas Kavanagh, William John Lark, Milton Charles Moorhead, William Russell Nelson, David Barry Fletcher Quick, Thomas Llewelyn Robson, Edward Hamilton Smith, Gordon Clive Snell, Cecil Snyder, Edward Lionel Kenneth Travers, Peter Andrew Tkachenko, John David Watson, William John Weller.

Melbourne. Donald Patrick John Davenport, Basil James Gilbert, Richard Williiam Moncur Jones, Kevin Lo, Henry David Myers, James Edward Reilly, Walter Ernst Ritter, Harold Gilbert Smith, Edwin Charles Joseph Snell, Terrance Leslie Stokes, Kenneth Owen Donald.

The examination was conducted by a Board of Examiners comprising officers of the Australian Broadcasting Control Board, Mr. R. H. Mondell, of the Dept. of Technical Education, Sydney, and Mr. F. A. Kempson, of the Royal Melbourne Technical College.

Examinations are conducted twice yearly, on the second Tuesday of June and December. Applicants who have passed any sections of the examination on a previous occasion will be exempted from these sections for a period of 12 months, that is two half-yearly examinations succeeding the passing of the sections.

The next examination will be held on 9th December, 1958, and applications for this examination must be lodged with the Secretary of the Board, 497 Collins Street, Melbourne, by 15th November, 1958.

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RADIO SIGNAL REPORTING CODES

The Comite Consultatif International Radio (C.C.I.R.) in London in 1953 recommended that the SINPO and SINPFEMO codes be used instead of the older Q and other codes in use.

The signal report consists of the code word SINPO or SINPFEMO followed by a five or eight-figure group respectively, rating the five or eight characteristics of the signal code. The letter X is used instead of a numeral for characteristics not rated.

CONTEST CALENDAR

Compiled by W.I.A. Fed. Contest Com.

★

R.D. CONTEST:
Return of Logs.—Postmarked not later 6th Sept., 1958, to F.C.C., Box 1234K, G.P.O., Adelaide.

VK-ZL DX CONTEST:
Dates: Phone—4th-5th Oct., 1958.
C.w.—11th-12th Oct., 1958.
Bands. All h.f. bands (including 11 mx).
Rules. See new Rules this issue.
Logs: To Contest Manager, N.Z.A.R.T.

"CQ" WORLD-WIDE:
Dates: Phone—0200 GMT, Oct 25, to 0200 GMT, Oct. 27.
C.w.—0200 GMT, Nov. 29, to 0200 GMT, Dec. 1.
Bands: All h.f. bands (including 11 mx).
Rules: No change from 1957 except for minimum operating time of 12 hrs. to qualify for an award. (Note Rule 8, sections 6 and 7.) Rules will appear in this journal next month.

R.S.G.B. TELEPHONY CONTEST
Dates: Nov. 22 and 23.
Bands: Restricted.
Rules: Same as for 1957 except for scoring bonus for working G3 stations.

ROSS HULL MEMORIAL V.H.F.:
Dates: 1st Dec., 1958, to 31st Jan., 1959.
Bands: All v.h.f.
Rules. Same as for 1956-57.

NATIONAL FIELD DAY:
Date. Sunday, 25th January, 1959.
Bands. (1) H.f. (2) V.h.f.
Rules. Note changes for ratification this issue. Returns Sept. 30.

FEDERAL QSL BUREAU

Jack Elliott, ZL3CC, who has visited Australia on several occasions, is indulging himself in a world tour in 1959. Itinerary takes in Sydney, Melbourne, Adelaide, Fremantle, Colombo, Port Said, Naples, Versailles, Gib-

SILENT KEY

It is with deep regret that we record the passing of:—

VK4BW—Andy Couper.

raltar and Tilbury on forward journey. Jack will spend two days in Melbourne early in February while the Orcades is in port. ZL3CC plans to spend some time in U.S.A. on the return journey.

Details of the Radio Club Uruguayo "Certificate 33 Orientales" may be had from this Bureau or from the Awards Manager W.I.A. Rather a tough certificate to come by.

Another elusive Certificate is that called "Diploma Da Africa Portuguesa". Details are available on application to this Bureau or from Awards Manager W.I.A.

Details of yet another Certificate styled S.O.P. Award (Sea of Peace), sponsored by the Rostock district of the German Democratic Republic, have also come to hand.

A further Certificate styled "W.A.L.A." (Worked All LA) is now issued by the N.R.R.L. Contacts from 1950 are valid for this award. Full details from this Bureau.

The Paraibas Association of Radio Amateurs (A.P.R.A.), from that district of Brazil, forwards details of their new award called "Cabo Branco". Entitlement demands the contacting of 10 YP7 Amateurs.

One of the most consistent DX stations to be operated by a member of the fair sex is OQ5IE. The operator is Jane Hiernaux, XYL of antother well known DXer, OQ5GU. Jane operates mostly 14 Mc. c.w. and uses 50 watts to a g.p. ant. Her sigs can be frequently heard in VK between 1400z and 2300z. Contacts are sought with VK and a card is assured via Box 403, Stanleyville, Belgian Congo.

Ray Jones, VK3RJ, Federal QSL Manager.

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NEW SOUTH WALES

The attendance at the July meeting was higher than for many months with nearly 80 members assembled at Science House. 30 new members were elected, including 11 full members. This continued increase in Divisional membership is most gratifying and amounts to three new members joining every two days. It was agreed that the names of 36 unfinancial members be deleted from the register.

The news of the proposed 11 kv. power extension down Quarry Road, Dural, caused much comment. John Moyle 2JU spoke on the dangers of power line interference which might result at VK2WI. Dave Duff VK2EO assured members that negotiations with the Supply Authorities had resulted in their agreeing to terminate the 11 kv. in a transformer at the northern boundary to the Division's property, and continue the extension along Quarry Road at 415 volts 3 phase. The Supply Authorities had agreed to take every possible precaution against interference and would use fog-type insulators on the 11 kv. line. It was anticipated this extension would be in operation by the end of August.

The Secretary reported that the Correspondence Course was functioning well and that 40 had enrolled to date.

A letter from the VK3 V.h.f. Group was read. This letter asked for support from VK2 Division to their request that the 50 Mc. band be retained.

The lecture given by Max Riley, VK2ARI, under the heading "A Guide to Constructors" was of particular interest. Max covered a wide field of subjects closely allied to problems encountered by home constructors of both transmitting and receiving equipment.

Noel Hanson, VK2AHH, from Kempsey, moved the vote of thanks to Max.

A large number of members gathered as usual to extract their QSL cards from Frank Hine's card bins which are available at each meeting.

The usual coffee and biscuits available after the meeting saw members gathered in small groups discussing their pet theories.

[illegible]

Bill Kirchner, VK2ZK, lecturer in chemical engineering at the Tighe's Hill Technical College, entertained the boys at their July monthly meeting, showing how the atomic clock works and judging by some of the questions Bill was called upon to answer it showed that some of the lecture soaked into the grey matter. Atomic structures of the amonium molecule were passed around for examination and as far as I know no one swallowed them for pills.

President Lionel 2CS thanked Bill on behalf of the following who were present: VKs 2XT, 2AQR, 2AOR, 2QB, 2ZDL, 2ZDF, 2RJ, 2AEE, 2SJ, 2FP, 2WQ, 2SF, 2ZK, and Associates Sutherland, Hughes, Jefferson, Bailey, Davis, O'Brien, Rugg, Roberts, Lindsay, Richardson, Bergmann, Connors and Stobbs. A nice diversion was created when an atomic-blonde brought her exercise to be marked by Bill—oh, to be a teenage teacher.

Alan 2SJ, from Maitland, was a new face and we hope to see you often, Alan. By lengthy and devious routes a message of greetings was received from Ron Bishop, ex-2WB. Gordon Sutherland, our Social Secretary, reported on the progress of our dinner and field day and to date everything is running very smoothly. Several films were available for projection but unfortunately some cad pinched the University's machine—hope he gets life. Our old friend, Wal ZL1AUL/2 has been heard in N.Z. on a local b.c. station and by the time this is in print we will have received 120 slides of N.Z. plus a tape describing them and they will be shown as soon as practicable.

Pop 2AHL made a quick trip up to exchange sets with Bill 2ZL; don't know how he made out as the last time I saw the set Bill was removing the cob-webs with a hose. The weather must be getting warmer as there was quite a roll-up at Bill 2XT's monthly social gathering. A welcome visitor was Barry 2AAB. Swedish s.w.l., Sven, has logged the signals of 2AOR and 2ZL. John 2XQ heard for first time reporting to 2AWX and someone woke up Jack 2KQ to do likewise, must have been 2XT's voice as he took over 2AWX for the night.

I have seen many strange things, but I never ever thought I would see a Ham shovelling, yes, shovelling, valve sockets into a tin; ask 2ZL, he can tell you all about it.

The latest honour that has come to your Branch is the knight-hood bestowed on your correspondent by someone or other in N.Z., who, after seeing my photo, drew his sword and said, "Arise Sir Cumference." That's me, boy!

Don't forget Oct. 4 and 5 and send in your registration pronto and before Sept. 27 Good speaker, good dinner, good company—what more do you want?

Next meeting at University of Technology, Sept. 12 and the social at 2XT's on Sept. 24, and while you are about it, have you donated to the I.T.U. Fund? You should you know.

— . . . —

VICTORIA

The problems of eyesight and television were presented to the last meeting by Mr. Owens, of Andrew Geddes Pty. Ltd., Melbourne. Everyone who heard this lecture should now know the reasons for most of the eyesight difficulties which arise and should also know most of the means at our disposal for combating them as this received very close attention by the lecturer. Surprisingly enough, troubles from this source are rather prevalent and until manufacturers were put on the right track, much time was spent in trying to right sets which were in fact satisfactory; the trouble being with the viewer's eyesight. The lecture as presented to us was originally designed to give assistance to dealers and the like in these matters. One of the difficulties often encountered is the difference between the eyesight of young and old. Because of this difference a family group viewing a set for the first time will often give widely differing opinions on the set's performance. To some it will appear to be perfect and to others the very opposite.

This was the problem which had to be solved and, as the lecturer explained, the factors causing these anomolies are many and may be broken up into those of light, optical and visual ones. This presupposes, of course, that the t.v. set is functioning correctly and when this is so, any lack of clarity to the viewer is usually due to some deficiency in his eyesight. The reason why this can be said is that t.v. is, after all, only a picture and the t.v. we get in VK is very sound technically.

The light problem is usually associated with levels existing between the picture tube and the general room lighting. The ideal set-up to solve any problems which arise from this source is a picture of minimum brightness and a general level of light in the surrounding area of about the same intensity as the screen. This will give viewing free from flicker and a minimum of eye strain from glare and contrast.

Optical problems arise from eye imperfections which are long sight, short sight and astigmatism. Viewers who suffer from any of these complaints are almost sure to experience difficulty with their viewing and will need to see their eye man for the remedy. Symptoms are usually headaches, squinting or blurred vision, but there are plenty of others from all accounts. Although our t.v. is near perfect the abnormal eye is found out fairly quickly as viewing is indulged in to extremes by most and the eyes can't take it. Even perfect eyes will suffer from fatigue if viewing is not taken in moderation. This was one of the hints given by the lecturer.

Other hints on viewing given by Mr. Owens were, keep the viewing distance from the screen to within about 6 or 7 times the height of the screen, i.e. about 8 to 10 ft., otherwise fatigue will result, viewing periods should be kept to a minimum or again fatigue will develop, children to view from the same distance as adults, but not from the floor where they have to look up as this is unnatural and tiring to the eyes, the set should be kept at its best pitch of operation and in tune at all times.

Mr Owens went to a great deal of trouble to highlight these problems together with the reasons behind the various solutions. He did this by explanation and with the assistance of slides and we are very grateful to him for reducing such an involved subject to a level which could be so readily understood.

The stereoscopic photographs presented were most realistic and were a sample of what lies ahead of the t.v viewer, so the lecturer believes. He also maintains that t.v. must eventually be in colour to be entirely satisfactory. With all these things to come, present day sets should soon be out of date, so that gives me another excuse for putting off the evil day.

As was to be expected, Mr. Owens was deluged with questions after his lecture and these were handled in the same professional manner as was the lecture. A very good night was had by all. Len 3LN made a tape recording of the lecture for the benefit of those who may wish to avail themselves of this service.

At the general meeting which accompanied the lecture, the following items of interest were noted: New members admitted—Messrs. A. D. Pridgeon (3ZCA), R. W Badrock (3ZQC), G. Wood (3AUU), I. D. Thomas, N. L. Jenkins and A. J. Brook.

Canberra Radio Society and South Western Zone, W.I.A.

present

6th SOUTH WEST. ZONE AMATEUR RADIO

CONVENTION

at

CANBERRA, A.C.T.

4th and 5th OCTOBER, 1958

to be held at the **Canberra Club House, Riverside, Canberra.**

PROGRAMME

Tour of Canberra.

Saturday Evening: Dinner, Amateur Hour (bring your act or music), Films, Novelty Items.

Sunday. All-Band Scramble, 144 Mc. Tx Hunt, Disposals, Blindfold Tx Hunt.

Book accommodation immediately to—K. Finney, Box 69, Kingston, A.C.T.

W.I.A. VICTORIAN DIVISION

NINTH ANNUAL

STATE CONVENTION

will be held in

MELBOURNE

SAT., SUN., SEPT. 20-21, '58

Programme:

Saturday evening: Convention Dinner and Meeting.

Sunday: Various attractions such as Tx Hunts, Novelty Events, etc. Barbecue Lunch will be provided.

Listen to VK3WI Broadcasts for final programme details.

Accommodated will be arranged if required. Anyone wanting hotel accommodation must send a deposit of £1 to the Vic. Div., 191 Queen St., Melbourne, promptly.

At the recess, Sid 3ASC disposed of a box of wire oddments which he had donated. The money so raised was given to the I.T.U. Fund. A recommendation was also put to Council that Institute funds be made available for this fund. Council reports that the fund now stands at the very handsome total of £1,350. Don't let this deter you from sending that donation as we are not near the target of £2,500 yet. Don't forget, also, that our cause is going to be considerably strengthened if we can demonstrate that we have a use for our bands, so get on as often as possible and prove this point. If we don't make it abundantly clear that we need the bands for our purposes, then our representative at I.T.U. is going to find it difficult to substantiate our claims. Incidentally, the P.M.G. has given his blessing to the proposal for a VK Amateur to attend I.T.U. as an observer, so things are moving in all spheres of this project.

Steps have been taken to protest against the latest directive that only English may be used from VK stations.

The next State Convention is to be held in Melbourne on 20th and 21st September.

Owing to school holidays, the next general meeting will be held on the second Wednesday of the month instead of the first, that is on the 10th September, and the lecture will cover Fox and Transmitter Hunting, together with a demonstration of the gear in use on these activities.

MIDLANDS ZONE

Alteration to the zone hook-up night to Tuesday has not yet brought in those other calls we hoped to see, but when they remember that the second and fourth Tuesdays at 7.30 on 80 mx are the nights, then we are hopeful of a greater roll-up. In the meantime, those who attend spend a pleasant hour or two in an entertaining discussion, and we hope this can be shared with others.

It appears that old age, or the law, has caught up with 3TG, as his car is off the road. He was seen hiking from Castlemaine to Maryborough to catch the train by 3IZ, who picked him up and prevented a few blisters on the toe. 3IZ is building a panadaptor, but is finding difficulty in obtaining 1600 Kc. I.f's. After the meeting at Castlemaine last month, Peter drove home and arrived there without any feeling and little visibility through the wind screen. A heater has now been installed to cater for nights such as that, and we now have another happy operator on the air.

Neville 3ACN is re-building his s.s.b. rig and is highly jubilant at the moment, having finally made his balanced modulator balance. This was after changing the original four diodes, which on test had forward and back readings, within about 400 per cent. of each other. A visit to the local store, a box of diodes and a multi-meter eventually served up four diodes with reasonable tolerance. The rest of the rig has yet to be tested and it is hoped to report success next month.

When this zone was first formed it was advised that a frequency meter was allotted to it, but after a lot of enquiries and searching, it now appears that this frequency meter resembles the "oofoo" bird, in other words, it just doesn't exist. However, one or two are owned by members of the zone, and these can be made available should any member require one. 3ACN has volunteered to do any spot frequency checks for anyone interested, preferably during the hook-ups.

SOUTH WESTERN ZONE

Well the zone has woken up after a short spell; the hook-ups have been sadly let down, but on 31st July it was a terrific night as all or most zone stations were on. They included Brian 3ADU, Gordon 3AGV, Chris. 3AXU, John 3AGD (Voice of the Grampians), Kevin 3AKR, John 3ARJ, Jim 3ABT, Jack 3ALP who was 5-8 in Warrnambool and only using an 8 ft. whip, Bill 3XE, Gordon 3AGE, Leigh 3II, and Bob 3IC. Willie 3AWZ was missing; guess his bird family kept him busy.

I would like to remind all members not to forget the next Convention to be held in Ballarat in November. If anyone has the zone frequency meter could you please forward same to the Secretary, 3AGE.

EASTERN ZONE

Only four hounds attended our last 2 mx fox hunt held at Maffra. This number was very disappointing as it turned out to be a very nice afternoon. Ian 3AAV was the fox, with David 3DY, George 3ZCG, Fred 3ZEV and Ken Robertson as hounds.

Our next activities-day will be an all-band field day, held at Apex Park, along the Morwell River Road, near Boolarra, on Sept. 14. We would like to see all the Amateurs in the zone attend this field day, so bring along your wives and children, friends and portable rigs. Meeting time will be at 10.30 a.m., having a picnic lunch beside the river at noon, a fishing rod and a camera would not go amiss, so hoping to see you all there.

[illegible] EASTERN [illegible]

Geo. 3ADZ now using lighting plant to drive 750 rx plus a new tx. Best DX George. Keith 3JC is back on the air working the DX on 20 mx only. Arthur 3AWL now operating 80, 40 and 20 mx. Henry 3HP working on 80 mx, look for you on zone hook-up Henry. Congratulations to 3FD and XYL—3rd harmonic putting out a strong signal. Welcome to Jack 3APL, best of luck on all bands. Regards to all members from Mawson. Doug VK0IJ looking for VK QSOs on 20 mx.

WESTERN [illegible]

Pleased to hear that Gordon 3NX, of Warracknabeal, is on the air again. He was very active before the war, but pressure of business in recent years has left little time for Ham Radio. However, he is using a Type 3 with a higher powered rig coming up in the near future. Chas 3IB, ex-3ACI, 1AC, 0AB, is now settling back to work at one of the metropolitan b.c. sations. He recently made a holiday tour of New South Wales and Victoria where he paid visits to some of his Radio cobbers, who have also spent their share of time on islands in the Antarctic.

Sorry to say that Jim 3DP is on the sick list and certainly hope that by the time these notes go to press he will be fit and well again. Gordon 3GW, of Rainbow, is building up a switch network to change power supply to different transmitters. Guess he has it finished by now.

GEELONG AMATEUR RADIO CLUB

The Club activities have reached an all-time peak with 30 new members and a new set of officers for 1958-59. Our new President is Bob 3IC., Secretary Harry Michael, and Treasurer Vic Clarke. We attribute our outstanding burst of activity to the work of the officers of last year mainly, J. Barber, 3ABT, Vic. Clarke and Bob 3IC, and the energetic [illegible].

There has been a number of excellent lectures by various members. Vic. Clarke gave a talk and display on direction finding loops; Mr. J. Beckingham continued this theme with particular aspects of mobile equipment. A tx hunt was held recently for an evening mobile exercise and the members found the tx concealed near the railway station.

The local members are very pleased with the disposals allotment and hope to do bigger and better things with it this year.

A study group and morse code class are in capable hands and we hope to have some more QRM by the end of the year.

MOORABBIN AND DISTRICT RADIO CLUB

The blow has fallen at last! Our meeting place is down in the dust and we have to shift the scene of our activities, at least for the time being. One of our staunchest members, Ed. Manifold, has kindly offered the use of his shack to tide us over until permanent accommodation can be obtained. Meetings will be reduced to once per month, on the third Friday of each month, at 287 Jasper Road, McKinnon.

At the last meeting, a sum of £5 was voted from Club funds as a contribution to the I.T.U. Delegate Fund.

Congratulations to our Vice-President, Jack Hudson, and member Max Dalton on gaining their two-letter call signs. There's going to be some mighty ear-bashing on 40 mx round Moorabbin and Highett in the near future!

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QUEENSLAND

The Council meeting on July 11 saw a good roll-up of Councillors, which was possibly due to the fact that the meeting was conducted in the lavish surroundings of the Y.M.C.A. dining room. The President, John 4FP, thanked Ron 4RO for attending the meeting in the capacity of liaison officer for the T.V.I. Committee. The minutes having been read and confirmed, councillors noted with interest and with pleasure that the northern boys have set a good example by their generous donations to the I.T.U. Fund. It was also noted that quite a few non-members have responded to the circular sent out by F.E. The support of member and non-member is greatly appreciated, and Council commends the interest taken in such an important matter as this. Keep it up boys!

Arthur 4AW received signals from F.E. concerning the scarcity of tubes in India and the subsequent plight of the Indian Amateurs. Details of this have already been published in "A.R." Also, we were asked to remind Qld. Amateurs that a section will be devoted in "A.R." to a shack description with accompanying photographs. So what about it boys, spruce up the shack and have your pitcher took! (Photos with good contrast are required. The block will be donated to the Amateur for his use by the Publications Committee.—Ed.)

Ron 4RO announced to Council that the T.V.I. Committee was back on the job. The Committee now consists of Tibby 4HR as Chairman with 4RO, 4JZ, 4SA, 4MC and Alan Smith, all raring to go. Council approved the purchase of several items of equipment and with t.v. just around the corner, members are earnestly requested to co-operate to the fullest and become t.v.i. conscious. A meeting of the T.V.I. Committee will be called in the near future to discuss proposed policy, etc. We wish them every success as they've taken on quite a job.

Members will note with interest (perhaps) that the policy book has not been forgotten as the President John 4FP and his sub-committee have arranged further meetings at which all past Institute minutes are carefully read and compiled.

Also the task of determining all the Institute's assets has come up for consideration and a committee formed to investigate the matter.

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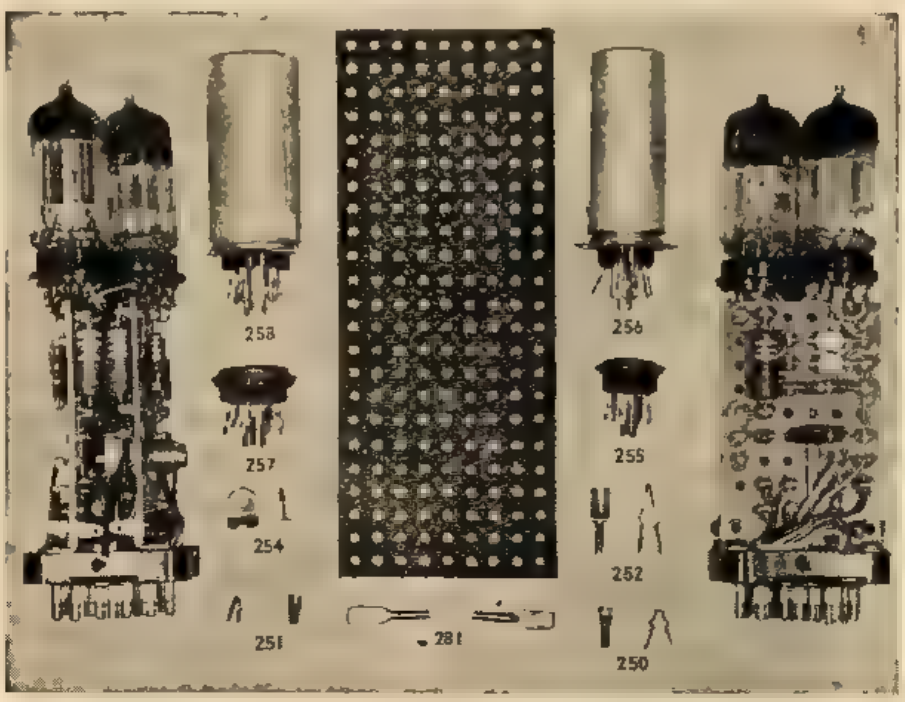

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Jim 4OB in tabling his monthly report as Treasurer announced that the Institute had, as a result of the Palm Beach Convention, a further £9 in kitty towards the 1958 Convention. It was proposed that Council attempt to secure the camp for an earlier date than the Queen's Birthday week-end. The bad weather experienced rather detracted from an otherwise very successful Convention. Let's all hope the weather is kind next time.

Unfortunately our Secretary, Jim 4PR, has been transferred to Townsville and things have, for the time being, been put out of gear. However, his vacation should make him feel more than ever ready to step back into harness. We all miss you Jim. Also headed north is our Station Manager, Bert 4AO, who, with his family, is motoring to Innisfail. Bert hopes to visit as many of the northern boys as practicable. Get your swap-boxes ready boys.

The last Convention showed us the need for stimulated interest in v.h.f. and civil defence. To this end, we now have a v.h.f. society which meets every third Friday at 4JO's QTH at 8 p.m. Bruce, as Chairman, has set the ball rolling and preparatory construction of W.I.C.E.N. communicators is under way. The sets are to be manufactured by a small group of Hams in assembly-line fashion. This is to ensure a standard of interchangeability. The frequency selected is 57.8 megacycles and the sets will be sold at cost to various Amateurs. The society also intends sending out a circular to all old and new v.h.f. licensees. It is hoped thereby to create greater interest and secure more members. Another method of running 2 mx tx hunts is still under discussion. The proposed method is to change firstly from 2 mx to 5 mx using loops instead of beams. Other alterations will consequently be necessary to suit local conditions.

Vince 4VJ and Evan 4EF at the last general meeting showed how very effectively an Amateur's position could be pinpointed within a matter of seconds on a specially prepared map. This step is to become standard procedure and it is suggested that Brisbane Amateurs secure a copy of a map of Brisbane from the Emergency Committee or (for those who know the map) from the Lands Office. When Amateurs are sufficiently familiar with this Army type of simple map reading, a further exercise in Civil Defence will take place. This particular map is divided into 2 inch squares with co-ordinates suitably marked along and down the side of the map. The Dept. of Civil Aviation is to be the parent organisation for C.D.E.N. in Qld. and quite probably the next exercise will involve the noting and recording of aircraft flights in different parts of Qld. as well as determining the condition of any local aerodromes, etc. Information will be passed on to D.C.A. for checking, so be on your toes.

A very interesting film show was put on at the last general meeting by the film unit of the P.M.G. Dept. The films, although of a reasonably technical nature, were touched with patches of delightful humour and altogether the show was thoroughly enjoyed by quite a large body of Hams. Our thanks go to the Dept. for a pleasant evening's entertainment.

The last 2 mx tx hunt was hidden by Ross 4ZAT who had artfully concealed the tx in a vacant paddock near Chermside. John 4FP once again located it first in 14 minutes. Mrs. 4ZAT supplied the boys with an on the spot supper which was really appreciated as the night was very cold. The next tx hunt will be hidden by John on the first Friday of September.

TOWNSVILLE

It was quite a change to see the extra roll up at the monthly meeting of the club, held on 31st July, to hear the lecture on "C.R.O. and its uses" by Allan 4PS. At the end, Allan was bombarded with questions which were duly answered. It was quite nice to see the animated discussion which took place, also the barrage of advice given to Ted 4EJ in answer to his question.

The T.A.R.C. has decided to forward £5 to the fund for a delegate to the I.T.U. Conference, this is in addition to the usual db. being forwarded by all members. This certainly shows how the boys here are alive to what might happen if no delegate is sent overseas.

Now that the 50 Mc. "rat race" has ended for a while, it is expected the local Z boys will concentrate on 144 Mc. and make the band popular in this district. Amongst the older members there is not much doing and only two or three heard on the various bands except for the country boys who certainly give 7 Mc. a hiding, the skip not being favourable to the other bands. The bands lately have been behaving irratically and no opening appears for two days running to the various DX countries.

Harry ex-6HO has now become 4OH and lives at Mossman, taking up a milk run—a far cry from his last job at Rabaul. Hopes to meet the boys on the various bands in the early evening and not in the morning, too busy. Visitor to the shack this month was Frank 4FC from Ingham and all gear carefully watched. Allan 4RE came out to help with building of new tx, guarantees no bugs in the finished article (hi). Bob 4TK sent along the doings for 7 Mc.

The past month has seen the passing of that grand old man, Andy 4BW, who, for many years, carried out the duties of maestro for the 7 a.m. hook-up on 7 Mc. each day. His passing has left a gap that cannot be filled in the group. It is understood the State W.I.A. will have a full statement to make on his passing as he had been a Ham since 1913.

Over the past month quite a large number of signals have been heard on 40 mx from the locals. Many came into the hook-up for news of the late Andy, and at times the sessions were crowded. Eric 4EL has been heard from time to time. Alex 4MA at Mt. Garnett has been busy getting a No. 19 to operate and needs a handbook on this set. Can anyone help him out? Don 4PW looking for dope on a Japanese tube (DZ310) he has, any help? Vern 4LK still manages to get a few JAs on 50; has been missing in the early morning hook-up, probably too cold. Herb 4JW likewise. Bazil 4ZW has had trouble with a power transformer, decided to rewind it when he heard the cost of a new replacement. He did excellent work for the gang during an unhappy occasion, in handling the wreaths at the funeral of Andy 4BW. Harry 4ZP and Eddie 5OW heard giving Bob 4RW pointers in making sauces and custards. Eric 4EC visiting the southern States very shortly, promises to stop at Orange Grove and see the old QRM, 2AJY.

Harry 4HK has been asked to write up notes of late Andy's radio history. This has been forwarded to the boys in Brisbane for collating. Bert 4BP, like Harry, is very busy, but makes time to come on now and then. John 4DK going high power, getting interested in 813; the humble 807 being pensioned off. Nick 4WT still has his rig at the airfield but intends shifting it to the new QTH. No excuse then to go out to see the boys. Edgar 4SF graces the band in the evening and has a nice signal. Claude 4ZW, one of the old-uns, has retired and is going to devote all his time to Ham Radio and lives at Cairns. Frank 9FN recently went up to Giroka in the highlands of N.G. Had to construct a special rig but not for Ham bands. Would not take any orders for Bird of Paradise plumes.

Bob 4TK has been appointed control for the 7 a.m. hook-up on 7 megs. Members are to be charged extensions if they go over 3 mins. Some members owe quite a few db. too. Bob 4RW can speak for himself but his cheery voice breaks in at times in the evening hook-up on 40 mx. Suffers a lot of line noise at his QTH. Can he make custard? Ask his harmonics!

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SOUTH AUSTRALIA

A most topical subject, "Transistor Power Supplies and Silicon Diode Rectifiers", was presented to our last monthly meeting by Mr. Maurice Johnson, of T.C.A. Hendon, in a very lucid and learned manner. He dealt with the history of the development of application of the transistor to the switching circuitry required for converting low voltage d.c. to high voltage, and illustrated the various phases of the circuit function with diagrams from a good collection of slides.

Once or twice a formula or two was thrown in to demonstrate a point, or to "show how the circuit was conforming", which rocked a few of us, in fact as Gordon 5XU said on the session the following week, we then "picked ourselves up off the floor and brushed the dust off, then carried on."

As before, lectures like this one, as with others on these new "electron gates" are starting to change our thinking quite a lot, and now that cost is getting within reason, availability nearly normal, and frequency of usage climbing up, more and more interest is being shown in them. We are pleased them to be kept abreast of things in this regard by men of the calibre of Maurice who are prepared to share their knowledge with us.

Descriptions of equipment such as he described are appearing in current issues of overseas magazines, so now some of the terror has been removed for us, and in light of the very greatly increased efficiency they provide the mobile boys have something really worth while to try.

Whilst on the subject of mobile work, it is interesting to note that there is a new series of tubes becoming available here that have 6v. fils. and function normally with 12 volts on the plates. "QST" mentioned these some months ago, and now an Australian manufacturer of car radios is using them, so there is another approach to the same problem.

Eight more new members were accepted at the meeting, a good sign this continual growth of numbers, indicating first a healthy interest in our hobby and secondly an active "membership" committeeman—good on you, Norm.

The Publications Committee is still enquiring from amongst us for articles for the magazine. So far the response has not been great, that is in sending mss. here. Tom 5TL gave a couple of very good ones on mobile works, and it is possible some have been sent direct to VK3 in which case very good, but in any case keep them rolling. There is a lot of evidence in listening on the bands that a great deal of building is going on, so put it on paper chaps, let's hear of your successes, and of your problems and how you solved them. There are a couple of d.s.b. sigs around in VK5 these days which no doubt differ from "the book", so what about a description of how you did it and what parts you used to do it.

The Sunday morning broadcasts recently have continued to be marred by the deliberate QRM, although it appears to go off when the post session hook-up takes place. A recent survey by one of our members qualified to undertake such, is narrowing down the field, so let's hope it works out and the brainless offender is laid to heel. Collaboration of the mobile gang, as suggested by Les 5AX, who if fitted with "sniffers", would also help.

D'Arcy 5RJ, of Kadina, is reported as being a very busy boy changing from d.c. to a.c., that is other people's supply, so what about taking some time to do yours and your gear and let's hear the voice again?

An enquiry from Wal 5DF recently for some information regarding an obscure tube prompts the suggestion that if any such enquiry is made at a "post session" hook-up on a Sunday, then there is every possibility of an answer forthcoming, for there is usually such a gathering then that someone's library will yield an answer. Not only tubes either, so use the service the session opens up—it's a part of your show.

Doug 5DW not on full power yet (hi), but does very well with what he has (saw a VK3 pal of yours recently, Doug., so look out for he gave me some ideas). Chas 5ON and Keith 5KH heard in QSO recently, were you using the short or long path fellows? David 5AW amongst the "loud and clear" types still, with George 5EC coming on occasionally with a really smart signal and a model of operating technique.

Dave 5BF complaining that he was not able to load the final too well on 40 mx, and later found out he was using his 20 mx rhombic in error; 5 x 9 here all the same, Dave, so what do we do now? Lance 5XL continues to "photo" and hi fi on tape, very good. Bob 5RI heard mobile at Medindie not long ago but back home now and on 80 mx heard to tell of a 400 odd journey in a day that really rocked his GW3 listener.

John 5JC even graced 40 mx recently in order to clear a query; see what I mean fellows, you ask on Sunday and you don't know what talent you rouse. Reg 5RR has a d.s.b. signal that really puts the S meter asleep, or it does here, about twice the strength compared with the same input on a.m. Come on Reg, do an article on it, for by August 31 those forms will all be finished and I'm sure a lot of information would result from such an article.

Ron 5MK bobs up on 40 mx too, not always on 6 Ron? Ask Les 5AX some day what happened to his 80 meg. converter—or would it be better not to? Jack 5AM does fine from the "Bridge with a mighty signal, Tom 5TL still keeping his hand in with the 123 and must be surprising himself with the way he gets out.

Doc 5MD had a pre-lawn-mower session recently with Mike GW3LFM in attendance. (Mike was staying with Doc., on Doc's side please) and the subject matter was s.s.b., so who knows but that silent worker may come up all "Donald Duck" some day.

Ron, Burnie and Co. at 5WC have had a sudden rush of members lately with all kinds of ex-call signs amongst them. Remember recently it was said that a session from them sounded like an M.C.C. dressing room yarn? Well, it's progressed since then with some VK inclusions so we can't name the team now.

A recent note from them provided a photo of the shack with all its glory (the old one that is—shack, not glory) including the new 5FY transmitter which is plate and screen modulated (wonder why?). By the way, Ron built in a very smart keying arrangement on the 807 final that will appeal to many, so we are looking to you Ron for an article on it, it's a cathode keyer with a screen blocking arrangement which cuts the plate clean and

by the right combination of B and C gives that copy-book keying we all like. No excuses fellow, you have been named now.

A recent W.I.C.E.N. exercise with Mt. Lofty as the centre passed off with great success on both 80 and 6, the lessons learned at Salisbury being used to full advantage from both technical and message handling angles. Great credit must go to these boys who unselfishly fit themselves for this task and brave the very inclement weather we have had lately to keep practicing so that they and their equipment will be able to provide an emergency service worthy of the Institute.

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WESTERN AUSTRALIA

Your scribe being off on a final fling before he goes back to work after eight months' holiday, no report on last meeting is forthcoming, this month. The matter of the member club, the Short Wave Group, was finalised, and numbers have now been issued. These take the form of those issued in other States, e.g. WIA-L6001, etc. Financial members of the club are entitled to all privileges enjoyed by Associate members of the Division. We wish the listener boys (not to mention the YL) all the best of listening, and a very happy association with members of the Division.

During my travels I enjoyed the hospitality of 6CL and his XYL Roma. Ian was conducting tests with his vee beams. He started off in very wintry weather with a field strength meter hooked up to a loaded whip in his utility. This worked very well until the ute became bogged. I believe Ian has now attached his device to his tractor. Roma finds the vee beams very handy at times. When Ian is working South Africa, it is only necessary for her to connect the feeders of the 80 mx dipole to the kitchen stove and hey presto—dinner!

6ZBU, 6GB and company conduct round tables on the v.h.f. bands. Some of these "coast to ghost" hook-ups have to be heard to be believed. I have heard at times four stations all talking at once, and, what's more, being heard. Triple duplex or triplex? I have still to find out the strength of a "three jersey" breeze.

A new voice has appeared on 80 in the person of "old timer" Vic. 6NL. He says he has not worked 80 before, having concentrated on the higher bands. From reports he has really enjoyed his introduction to the band; so much so that I have heard him threatening to stay off for a night or two to make up for lost sleep. 6LG, 6BE and 6NL were conducting a round table on 80 at 0115 the other morning. At the same time, 6CL could be heard on 40 working ZS, ZD6, CR7 and quite a lot of other DX. That new dipole 75 ft. high is paying off. Nice work Ian.

6WL has a beautiful signal these days—on 18 watts. Getting very nice reports from VK3 too. Shows what can be done on QRP when it is impossible to run higher power. 6CA has been busy getting his tower into the air. It is now in position—40 ft. in height—waiting for a beam. I believe the crane driver was not so lucky though, it took him two days to get home when the jib of the crane fell 45 ft. to the ground narrowly missing 6BO. Rollo would have done justice to the Olympic dash in his eagerness to get out of the way.

6SM has completed his new rig and is now running high power. 6WD is another who has increased power, and is now running 100 watts plus. Bob Glover has received his call at long last and has been working X band 50 Mc. with the Perth boys. He has also been heard working 6TH in Brunswick and 6MG in Manjimup. I think this last contact would put new heart into Mac, who has not had much luck with 6 mx to date. 6EJ has appeared on the band after a long absence due to pressure of work on the properties. Jack is running a new modulator—a pair of TZ20s. 6KO was heard the other day for the first time for nearly two years. Kevyn has been working temporarily in Melbourne but has now returned and settled at Wembley. He has been busy setting up his gear and hopes to be fairly active again. Nice to see you back, Kevyn.

6MA has been busy building a new converter, which he hopes to have finished before the R.D. Contest. I had the pleasure of spending quite a few hours in his shack and note that Allan is getting things set up very nicely. Believe Allan has been getting among the 20 mx DX. Heard 6LG talking about sending 6 mx signals with a horizontally polarised bedstead. Think Len will be horizontally polarised by the time he gets on to six, though. (Midnight horror indeed!)

Arrangements for the R.D. Contest are well under way in VK6. By the time this appears in print we will be awaiting the result. Another record roll up is expected from VK6 again, and we expect to be hard to beat. It is believed that about thirty stations hope to work for at least 18 hours out of the 24, which should make things interesting.

Results of the I.T.U. Appeal are very encouraging so far. If you haven't made your donation yet, it's time you thought about it. It could be a good form of insurance.

That's about the lot for this time, so will sign off till next month, chaps, wishing you all the best.

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TASMANIA

Alas! We have had to get a new zone correspondent and "yours truly", associate Terry Tongs, was "dobbed in", but will endeavour to carry on the good work done by Len ex-7LS, who, as he mentioned last month, has left us and gone to VK8 land. We all hope to hear you on the air again soon Len.

Yet another Annual Meeting was held at Ulverstone last month, in what we hope will be our permanent meeting place. The meeting proceeded after everybody was warmed or otherwise by the beautiful fire. The minutes of previous meetings and the various correspondence, etc., was speedily disposed of and our Past President's report was read (I believe it was made up on the spur of the moment), a great job, Syd. A new President was elected after a secret ballot and Ted 7EJ was voted in with a good majority; congratulations, Ted. Our worthy Hon. Sec., Max Lees, was "ceremoniously" bundled into office once more and told he was good for another 20 years —afraid you've had it, Max. Vice-Presidents, Syd 7SF, George 7XL and Lee 7KC, were duly elected and told they were good for at least a guinea. Dennis 7DR tried to push "yours truly" into the Treasurer's job but without success, so he will have to get out another balance sheet next year. Licensed Hams were threatened with dire things if they didn't work round the clock during the R.D. Contest—it's in the bag for VK7 if threats count for anything.

Jim 7JO and Athol 7LR have generously offered to help some of us associates to grasp a little more of the "know how" and quite a few intend having a crack at the exam in October. Therefore if the powers that be see fit, there'll soon be more dipoles on the coast than t.v. aerials.

The efforts of some of our YLs and XYLs in preparing supper for us were greatly appreciated; no need for breakfast next morning. There's nothing better than cream cake and radio round a good fire.

The inevitable auction took place after supper and it was hard to believe that so much junk existed in Tassie. The disposal of all the lots proved a marathon for our President/auctioneer. Associate John Lee got a beaut. aerial complete with insulators—just right for the xtal set, John. Someone bought a venetian blind for his car and of course Secretary Max bought several transformers. He simply loves "boiling them down" and winding new ones—kerosene will shift that gooey stuff off the kitchen table Max. Also, Max's XYL declares that a morse key has now become standard equipment with the cutlery on the meal table —certainly one way to learn the code. Our Treasurer reported about 2 db. gain in zone funds, which gives some idea of the quantity of "valuable gear" that changed hands.

Ken 7AI, operating on s.s.b. (the only one here in VK7 I believe), reports that our American friends relish a good chin-wag before breakfast. He is also tidying up a new 150w. final using 6146s; hope it functioned OK for the contest, Ken. Roy 7RN has his beam finished and working too, with all sorts of things coming in and going out on it. Is it any good as a scarecrow, Roy? Sam 7SM, with only three States to get, should soon achieve his W.A.S. certificate now that he has his cubical quad in operation. Our t.v. enthusiasts are still reporting good sound and pictures. Keep trying chaps, a new type of rx should result. The grape-vine, along with other things, is carrying whispers of several experiments with transistors. Best of luck.

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PAPUA-NEW GUINEA

The VK9 Division was shocked to learn of the passing of our old friend Andy 4BW. The enquiries from distant Amateurs bore witness to the many sincere friendships Andy had made on the bands. We in VK9 join with all members of the Institute in extending our deepest sympathy to Mrs. Couper.

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FOR SALE: H.R.O. Receiver with 4 coil boxes from 30 megs. to 1.7 megs., speaker and power supply, in excellent order and condition. Bendix LM10 Frequency Meter with calibration book and power supply, in excellent order and condition. Philips Philoscope model TA160 in excellent order and condition. Offers for the above equipment to be made to Mrs. D. R. Whitburn, C/o. Box 1234K, G.P.O., Adelaide, Sth. Aus.

SELL: English Minimitter Transmitter, 6 months old, as new, 150 watt c.w., 100 watt a.m., £120. B. & W. Electronic T-R Switch, Model 380B, for use with 52 or 75 Co-ax, £10. W. Hempel, Kyvalley R.-D., Victoria.

SELL: Frequency Meter LM-10, sim. BC221. 400 cycles mod. Calibration book. A.C. power supply. £30—or offer. K. Bridger, 261 Wood Street, Preston, Vic.

SELL: Steel rack and six panels. Some panels have been drilled. Structurally solid. £7/10/0. Roth Jones, 25 Panoramic Rd., North Balwyn, Vic. (WL 3292).

TOWER, guyed, 40 ft. high in 10 ft. welded sections, £28. C. Luckman, 2 Milton St., Canterbury, Vic.

Homecrafts PTY. LTD.

AMATEURS' BARGAIN CENTRE

EVERYTHING IN RADIO AND TELEVISION

CONQUEST — The New Collaro 4-Speed Automatic Record Changer, £18/17/6.

Q PLUS CRYSTAL SET
Complete with headphones and aerial ... £4/19/6

PARTS FOR "R. & H." TV
CHS1 Horizontal Sine Wave Coil ... 8/1
ChW1 Horizontal Width Coil, 11/-
ChW2 Horizontal Width Coil, 12/1
CHL1 Horizontal Linearity Coil ... 9/6
THB1 Horizontal Blocking Oscillator Transformer ... 12/4
THO1 E.H.T. Transformer, £3/7/1
THO2 (90 deg.) E.H.T. Transformer ... £3/9/9
Y70D1 70 deg. Deflection Yoke ... £4/12/5
Y90D1 90 deg. Deflection Yoke ... £5/17/3
And all other parts, including Chassis and E.H.T. Boxes.

VARIABLE CAPACITORS
ROBLAN MIDGET—
Single gang ... 21/-
2-gang RMG2 ... 30/6
3-gang RMG3 ... 39/-
2-gang vernier drive ... 30/-
3-gang vernier drive ... 45/-
2-gang FM ... 37/-
A.W.A. STANDARD—
Single gang ... 22/-
2-gang ... 29/3
3-gang ... 39/-
A.W.A. MIDGET—
2-gang ... 28/6
3-gang ... 37/6
R.C.S. 100 pF. Reaction Capacitor CV40 ... 17/3

PICK-UP CARTRIDGES
Collaro Studio "O" ... 70/-
Collaro PX Hi-Fi ... 73/6
Acos HGP37-IC ... 58/6
Acos HGP37-ID ... 58/6
Acos HGP39 std. or LP head, 72/6
Garrard GC2 ... 64/-
Collaro Studio "O" plug-in head complete ... 105/-
Philips AG3010 head ... 31/6
Philips AG3012 Hi-Fi std. ... 31/6
Philips AG3013 Hi-Fi LP ... 31/6
Philips AG3015 LP, diamond, 107/6

Collaro Hi-Fi PRECISION 4-Speed TURNTABLE with wide range PX Pick-up ... £32/2/6

SAPPHIRE REPLACEMENT STYLII to suit Collaro, BSR, Garrard, velvet action record changers and players, easy to fit yourself 18/6 each.

DIAMOND STYLII for Collaro, BSR, Garrard players and changers ... £7
For Dual players and changers, std. sapphire, LP diamond £7/11/6

The world's best COLLARO 3-SPEED TAPE DECK with 4 Hi-Fi Heads ... £52/10/6

BSR—Miniature TU-9 4-Speed Turntable (230v. a.c.) £7/10/0

DUCON HIGH-SEAL TUBULAR CAPACITORS

0.001/600	1/3	0.22/200	2/-
0.0022/600	1/3	0.27/200	2/3
0.0033/600	1/3	0.27/400	2/6
0.0047/600	1/3	0.27/600	3/3
0.01/200	1/3	0.47/200	2/6
0.01/600	1/4	0.47/400	3/3
0.022/600	1/6	0.47/600	4/3
0.1/200	1/4	0.56/200	2/3
0.1/400	1/9	0.56/600	4/9
0.1/600	2/-		

ELECTROLYTICS
8 mfd./125v. ... 5/-
8 mfd./350v. ... 5/1
8 mfd./525v. ... 5/6
8 mfd./600v. ... 6/5
16 mfd./350v. ... 6/3
16 mfd./525v. ... 7/4
16 mfd./600v. ... 8/3
24 mfd./350v. ... 6/9
24 mfd./525v. ... 8/9
24 mfd./600v. ... 10/-
32 mfd./350v. ... 7/4
50 mfd./525v. ... 15/3
100 mfd./65v. ... 7/6
100 mfd./40v. ... 6/4
50 mfd./40v. ... 5/1
25 mfd./40v. ... 4/1
250 mfd./12v. ... 6/4
1000 mfd./12v. ... 10/-

Simplex Ceramic (High Voltage) Beads and Discs
12 pf./1000v. ... 6/6
47 pf./1000v. ... 6/5
56 pf./1000v. ... 6/5
82 pf./1000v. ... 6/5
110 pf./1000v. ... 4/5
270 pf./1000v. ... 6/5
(Also available in 500v.w.)

SCOTCH 7-inch L.P. 1800 HI-FI RECORDING TAPE £3/10/0

TV INSTALLATION ACCESSORIES
No. 1 Chimney Bracket Kit, single wire type ... 55/3
No. 3 Chimney Bracket Kit, single strap type ... 58/6
No. 4 Chimney Bracket Kit, double strap type ... 73/7
Arms Flash Wall Outlet ... 4/3
Skyline std. Wall Outlet ... 6/9
Nail type Stand-off Insulators, per dozen ... 18/-
Mast type Stand-off Insulators, per dozen ... 30/-
Wood Screw type Stand-off Insulators, per dozen ... 21/-
Gutter Clips, each ... 1/-
TV Lightning Arrestor ... 16/3

Q PLUS High IMPEDANCE HEADPHONES ... 41/-

Miniature—BSR TU-9 4-Speed 6v. a.c. Turntable £9/10/0

Q PLUS COILS AND I.F. TRANSFORMERS
AC1 min. N1 aerial bandpass 18/6
AC3 min. N2 aerial bandpass 20/3
AC2 min. car radio aerial coil 20/3
AC5 std. aerial high gain N1 bandpass ... 20/3
AC9 std. aerial high gain 62 bandpass ... 20/3
AC4T unshielded aerial coil 15/3
AC7 std. car radio aerial coil 25/-
0.1 resistor wound (1R5) osc. coil min. ... 10/3
0.2 min. osc. coil (1R5, 6J8, etc.) ... 18/6
0.4 min. osc. coil (X61M, 6AN7, etc.) ... 18/6
0.5 min. osc. coil (6BE8, 6SA7) 18/6
0.7 std. osc. coil (6A8, 6J8, etc.) ... 18/6
0.8 std. osc. coil (6BE6, 6S37) 18/6
0.9 std. osc. coil (6AN7, ECH33, X61M) ... 18/6
0.10 1600 Kc. min. osc. coil 20/3
0.11 1600 Kc. std. osc. coil 20/3
O.M.E. tape recorder bias osc. coil ... 32/-
IC1 car radio ignition hash filter ... 4/-
RC1 min. RF coil ... 18/6
RC2 min. car radio RF ... 20/3
RC3 min. RF with reaction 20/3
RC4 std. medium gain RF 18/6
RC5 std. high gain RF ... 18/6
RC6 min. Reinartz coil ... 20/3
RC8 std. Reinartz coil ... 20/3
RC9 16 MH RF choke ... 5/1
IF8 No. 1 std. I.F. ... 27/4
IF9 No. 2 std. I.F. ... 27/4
IF41 No. 1 min. I.F. ... 20/-
IF42 No. 2 min. I.F. ... 23/-
IF14 and 15 1900 Kc. std. I.F. 27/4
IF25 std. high select. low gain 31/9
IF26 std. high select. low gain 31/9

DUAL 1004 HI-FI 4-SPEED RECORD CHANGER £32/8/6

MULTIMETER PARTS
0-1 mA. multimeter scale, 1000 ohm per volt University meter, ... £5/10/0
10 mA. shunt ... 12/-
50 mA. shunt ... 12/-
100 mA. shunt ... 12/-
250 mA. shunt ... 12/-
1 amp. shunt ... 18/-
14.8 ohm shunt ... 12/-
166.6 ohm shunt ... 12/-
1%—4 stab. 1w. resistors ... 3/9
1 mA. meter rectifier ... 42/6

Custom built 5 WATT AUDIO AMPLIFIER, complete with 12 in. speakers ... £19/19/6

COLLARO 4-Speed Record Player, £12/10/0

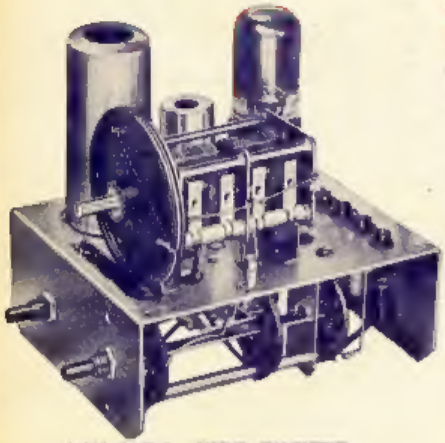
HOME CONSTRUCTOR'S SPECIALS
Jabel N2 planetary drives ... 16/6
Jabel dial scale assy. for N2 drive ... 20/-
Zephyr front-loading fuse holders ... 3/3
1-2-3 amp. fuses for pkts. of 5, 3/7
Buron crystal set coils, N1, ... 9/-
Buron crystal set coils, N2, ... 9/3
Buron Reinartz coil ... 12/9
Q Plus WFC1, 10 Kc. whistle filter ... 11/9
RCS 1½ in. 6-pin plug-in coil formers ... 5/9
Q Plus coil dope ... 3/3
Nylon dial cord, 25 yd. reel, 12/6
Q Plus single stage D/W bracket ... 105/-
Q Plus RF stage D/W bracket ... 103/-
PN351 noise suppressors, 2 x 0.1 mfd. ... 15/4
BSR HF8 motor only (230v. AC) ... £5/5/0
Neon test pencils ... 10/-
Zephyr 4XA crystal microphone ... 48/7
A2 ¼ inch grommets, 3/6 per doz.
Telephone cords ... 13/7
Ormiston hydrometers ... 11/-
Small pointer knobs ... 1/3
Large pointer knobs ... 2/3
Amphenol 4, 5, 6, 7, 8 pin plugs ... 2/3
Plug covers ... 2/3
Teletron 4-pin min. plugs ... 1/3
Teltron 4-pin min. sockets ... 1/-
Scope AC/DC 6v. 6 seconds soldering iron ... £2/10/0
Scope 230v. transformer ... 49/7
1/8, 5/32, 3/16 in. spin tites, 11/6
P.V.C. Hook-up wire (8ss. colours) ... 7d. per yd.
Single shielded hook-up wire, ... 2/1 per yd.
Twin shielded hook-up wire ... 3/3 per yd.
Single shielded thin hook-up wire ... 1/3 per yd.
Tinned copper wire: 16, 18, 20, 22 SWG (1 lb. reels) 16/- reel
18, 20, 22, 24, 26, 28, 30, 33 B. & S. enamelled wire, 4 oz. reels, 10/6
Multi-core solder ... 1/- per yd.
Test probes flexible flex (red or black) ... 2/3 per yd.
TV aerial 300 ohm twin ribbon ... 1/1 per yd.
Small alligator clip with screw, ... 11d. ea.
200 ohm/2 ohm line transformer, brand new ... 7/6
Zephyr 6 in. table mike stand, ... 16/10
M337 6v. non sync. vibrators, 36/3
M338 12v. non sync. vibrators, 30/3
Ducon plain potentiometers, from 10K to 2 meg. ... 7/4
Ducon potentiometers, with switch (500K and 1 meg.) ... 11/10
Philips latest Valve Manual 18/6
L.B. magnetic head book ... 3/6
Philips air trimmers, 3-30 pf. 4/6
Jabel compression trimmers ... 1/3

TV CONSTRUCTOR PARTS
Philips Turret Tuner ... £18/5/0
Philips deflection and focusing assembly ... £6/4/6
Picture Tube sockets ... 5/3
Centering Magnets ... 5/3
17 in. or 21 in. E.H.T. Assy. ... £23/17/6
Astor Turret Tuner ... £19/15/-
T158 frame output t'former, 55/-
T125 line blocking t'former, 14/3
T128 p.p. line transformer, 25/-
T110 filter choke ... 32/6
A.W.A. Roster components for 17HP413 tube ... £13/6/0

Call in and see our Mr. S. Hurrey. Let him solve your HI-FI problems for you! We are suppliers of LEAK, QUAD, WHARFDALE, ORTOFON, FERROGRAPH, and STEREOPHONIC equipment.

290 LONSDALE STREET, MELBOURNE FB 3711

3 GELOSO V.F.O. UNITS
for the Amateur



4/102 V.F.O. UNIT EXCITER

MODEL 4/102 V.F.O. UNIT EXCITER

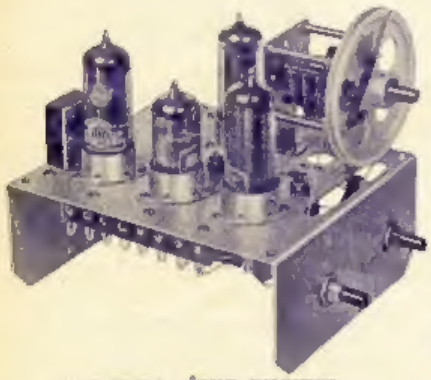
Five Bands: 80, 40, 20, 15, 10 metres

Using 6J5, 6AU6 and 6L6 Valves

- Instant change of frequency on any band by coil switching.
- Controllable output over entire tuning band.
- Single control full bandspread on each band.
- Capacitive output.
- Utmost frequency stability (plus or minus 200 c.p.s. on all bands).
- No plug-in coils required.
- Laboratory tested.
- Power supply required: 400 volts at 32-54 Ma.

PRICES
(Incl. Sales Tax; excluding Valves)

4/102	£10/4/9 available now
4/103	£13/8/9 expected Sept.
4/104	£11/3/9 expected Sept.



4/103 V.F.O. UNIT EXCITER

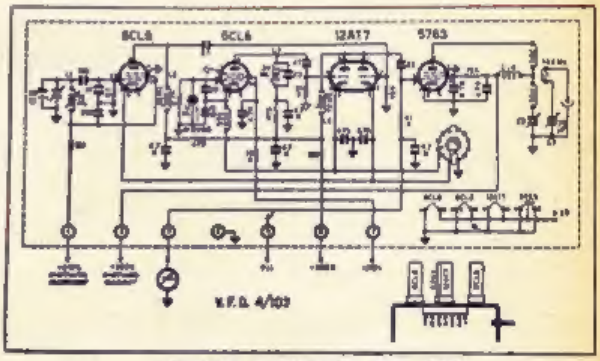
MODEL 4/103 V.F.O. UNIT EXCITER

Freq. Range: 144-148 Mc.

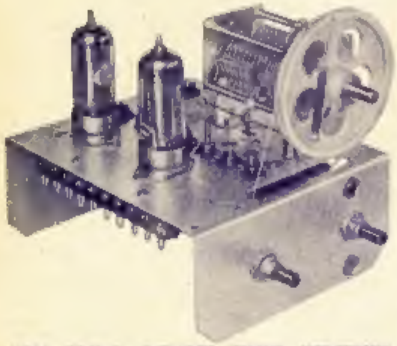
R.F. Power Output: Sufficient to drive an 832 or 2E26.

Valve Line-Up: Two 6CL6 oscillator multipliers, one 12AT7 multiplier, one 5763 driver.

The unit incorporates two different oscillator multipliers, one variable for establishing communication, one crystal-controlled fixed frequency oscillator for working.



CIRCUIT DIAGRAM FOR 4/103



4/104 V.F.O. 6-BAND UNIT EXCITER

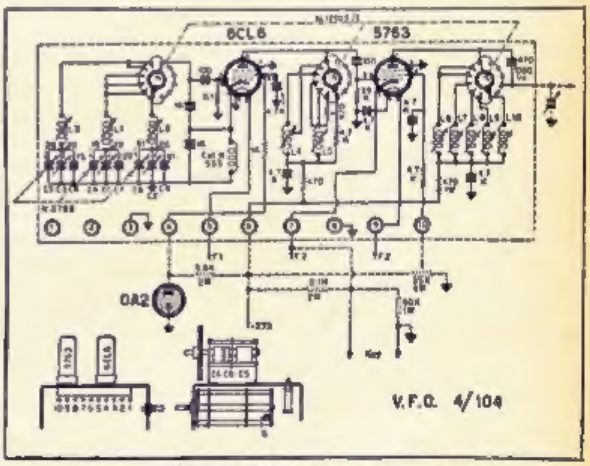
MODEL 4/104 V.F.O. UNIT EXCITER

Six Bands: 80, 40, 20, 15, 11, and 10 metres.

R.F. Power Output: Sufficient to drive one 807 or 6146 for phone or c.w.

Valve Line-Up: 6CL6 oscillator, 5763 driver.

This is an oscillator exciter of high stability, because of its conveniently selected C/L ratio and the 6CL6 oscillator tube employed.



CIRCUIT DIAGRAM FOR 4/104

SEE YOUR REGULAR WHOLESALER **NOW!**

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